Commonwealth of Kentucky
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

PRELIMINARY PERMIT DETERMINATION
Conditional Major, Construction / Operating
Permit: F-19-015 R1

On the Application Submitted By:
RKW North America, Inc.

for
Paper, Coated and Laminated, Packaging

270 Reasonover Dr.
Franklin, KY 42134

Review and Analysis By: William Parsons

September 23, 2019

Source ID: 21-213-00059
Agency Interest: 107116
County: Simpson
Regional Office: Bowling Green

Activity: APE20190005
Application Received: 9/20/2019
Application Complete: 9/23/2019
SIC Code: 2671

ATTACHMENTS:

ATTACHMENT A - PERMIT APPLICATION SUMMARY FORM
ATTACHMENT B - PERMIT STATEMENT OF BASIS
ATTACHMENT C - DRAFT PERMIT
ATTACHMENT D - PERMIT APPLICATION
Commonwealth of Kentucky
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

PRELIMINARY PERMIT DETERMINATION
Conditional Major, Construction / Operating
Permit: F-19-015 R1

ATTACHMENT A - PERMIT APPLICATION SUMMARY FORM
Commonwealth of Kentucky
Division for Air Quality
PERMIT APPLICATION SUMMARY FORM
Completed by: William Parsons

GENERAL INFORMATION:
Name: RKW North America, Inc.
Address: 270 Reasonover Dr., Franklin, KY 42134
Date application received: 9/20/2019
SIC Code/SIC description: 2671, Packaging Paper and Plastics Film, Coated and Laminated
Source ID: 21-213-00059
Agency Interest: 107116
Activity: APE20190005
Permit: F-19-015 R1

APPLICATION TYPE/PERMIT ACTIVITY:
[ ] Initial issuance
[X] Permit modification
    Administrative
    Minor
    Significant
[ ] Permit renewal
[ ] General permit
[X] Conditional major
[ ] Title V
[ ] Synthetic minor
[ ] Operating
[X] Construction/operating

COMPLIANCE SUMMARY:
[ ] Source is out of compliance
[ ] Compliance certification signed
[ ] Compliance schedule included

SOURCE APPLICABLE REQUIREMENTS LIST:
[ ] NSR
[ ] NSPS
[ ] SIP
[ ] NESHAPS
[ ] Other
[ ] PSD
[ ] CAM
[ ] Netted out of PSD/NSR
[ ] Not major modification per 401 KAR 51:001, 1(114)(b)

MISCELLANEOUS:
[ ] Acid rain source
[ ] Source subject to 112(r)
[X] Source applied for federally enforceable emissions cap
[ ] Source provided terms for alternative operating scenarios
[ ] Source subject to a MACT standard
[ ] Source requested case-by-case 112(g) or (j) determination
[ ] Application proposes new control technology
[X] Certified by responsible official
[ ] Diagrams or drawings included
[ ] Confidential business information (CBI) submitted in application
[ ] Pollution Prevention Measures
[ ] Area is non-attainment (list pollutants):
**EMISSIONS SUMMARY:**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Actual* (tpy)</th>
<th>Potential (tpy)</th>
<th>Allowable (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM/PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>0.049</td>
<td>0.31</td>
<td>N/A</td>
</tr>
<tr>
<td>SO&lt;sub&gt;2&lt;/sub&gt;</td>
<td>0.0039</td>
<td>0.024</td>
<td>N/A</td>
</tr>
<tr>
<td>NO&lt;sub&gt;x&lt;/sub&gt;</td>
<td>0.64</td>
<td>4.07</td>
<td>N/A</td>
</tr>
<tr>
<td>CO</td>
<td>0.54</td>
<td>3.42</td>
<td>N/A</td>
</tr>
<tr>
<td>VOC</td>
<td>8.03</td>
<td>62.1</td>
<td>90</td>
</tr>
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</table>

**Hazardous Air Pollutants (HAPs)**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Actual* (tpy)</th>
<th>Potential (tpy)</th>
<th>Allowable (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>0.00048</td>
<td>0.0017</td>
<td>N/A</td>
</tr>
<tr>
<td>Source-wide HAPs or Combined HAPs</td>
<td>0.00048</td>
<td>0.0017</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Green House Gases**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Actual* (tpy)</th>
<th>Potential (tpy)</th>
<th>Allowable (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrous Oxide</td>
<td>0.014</td>
<td>0.090</td>
<td>N/A</td>
</tr>
<tr>
<td>Carbon dioxide (CO&lt;sub&gt;2&lt;/sub&gt;)</td>
<td>773</td>
<td>4888</td>
<td>N/A</td>
</tr>
<tr>
<td>Methane</td>
<td>0.014</td>
<td>0.094</td>
<td>N/A</td>
</tr>
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<td>CO&lt;sub&gt;2&lt;/sub&gt; Equivalent</td>
<td>778</td>
<td>4917</td>
<td>N/A</td>
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</table>

*The information for the Actual Emissions was taken from the 2018 Emission Survey.*

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**Permit F-19-015**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Actual* (tpy)</th>
<th>Potential (tpy)</th>
<th>Allowable (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM/PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>0.049</td>
<td>0.19</td>
<td>N/A</td>
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<tr>
<td>SO&lt;sub&gt;2&lt;/sub&gt;</td>
<td>0.0039</td>
<td>0.015</td>
<td>N/A</td>
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<tr>
<td>NO&lt;sub&gt;x&lt;/sub&gt;</td>
<td>0.64</td>
<td>2.49</td>
<td>N/A</td>
</tr>
<tr>
<td>CO</td>
<td>0.54</td>
<td>2.10</td>
<td>N/A</td>
</tr>
<tr>
<td>VOC</td>
<td>8.03</td>
<td>14.8</td>
<td>50</td>
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**Hazardous Air Pollutants (HAPs)**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Actual* (tpy)</th>
<th>Potential (tpy)</th>
<th>Allowable (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>0.00048</td>
<td>0.00049</td>
<td>N/A</td>
</tr>
<tr>
<td>Source-wide HAPs or Combined HAPs</td>
<td>0.00048</td>
<td>0.00049</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Green House Gases**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Actual* (tpy)</th>
<th>Potential (tpy)</th>
<th>Allowable (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrous Oxide</td>
<td>0.014</td>
<td>0.055</td>
<td>N/A</td>
</tr>
<tr>
<td>Carbon dioxide (CO&lt;sub&gt;2&lt;/sub&gt;)</td>
<td>773</td>
<td>2994</td>
<td>N/A</td>
</tr>
<tr>
<td>Methane</td>
<td>0.014</td>
<td>0.057</td>
<td>N/A</td>
</tr>
<tr>
<td>CO&lt;sub&gt;2&lt;/sub&gt; Equivalent</td>
<td>778</td>
<td>3012</td>
<td>N/A</td>
</tr>
</tbody>
</table>
MINOR REVISION F-19-015 R1:
RKW North America submitted an application to the Kentucky Division for Air Quality to request the addition of a new 8-color flexographic press, a new RTO, and a doctor blade roller cleaner. The new press will be contained within a permanent total enclosure (PTE). The roller cleaner is a parts washer and an insignificant activity. Initial capture and destruction efficiency testing will be required for the new printer and RTO. These additions were originally processed as a minor revision as the conditions necessary for adding these kinds of units to the facility already existed in the permit and there would have been no significant changes to monitoring, reporting, or recordkeeping.

Following the previous request, another request was made to increase the VOC emission limit from 50 tons per year to 90 tons per year. This request was processed as a significant revision.

SOURCE DESCRIPTION:
RKW North America, Inc. manufactures films for laminating, food packaging, and industrial applications. The films and applications include monolayer and coextruded technical films, hygiene films, barrier films, polyethylene films, lamination films, shrink films, metaized films, synthetic roofing underlayments, high speed films, hot fill films, lidding films, and surface protection films.

EMISSIONS AND OPERATING CAPS DESCRIPTIONS:
The source has accepted a facility-wide cap on annual VOC emissions of no more than 90 tons per rolling 12-month period.

OPERATIONAL FLEXIBILITY:
None
Commonwealth of Kentucky  
Division for Air Quality  
300 Sower Boulevard, 2nd Floor  
Frankfort, KY 40601  

PRELIMINARY PERMIT DETERMINATION  
Conditional Major, Construction / Operating  
Permit: F-19-015 R1  

ATTACHMENT B - PERMIT STATEMENT OF BASIS
Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS

Conditional Major, Construction / Operating
Permit: F-19-015 R1
RKW North America, Inc.
Franklin, KY 42134
September 23, 2019
William Parsons, Reviewer

SOURCE ID: 21-213-00059
AGENCY INTEREST: 107116
ACTIVITY: APE20190005

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SECTION 2 – CURRENT APPLICATION ................................................................ 3
SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS ....................................... 4
SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS ............................ 7
SECTION 5 – PERMITTING HISTORY .................................................................. 8
SECTION 6 – PERMIT APPLICATION HISTORY .................................................... 9
APPENDIX A – ABBREVIATIONS AND ACRONYMS .......................................... 9
SECTION I – SOURCE DESCRIPTION

SIC Code: 2671
Single Source Det. □ Yes ☒ No If Yes, Affiliated Source AI:

Source-wide Limit ☒ Yes □ No If Yes, See Section 4, Table A

28 Source Category □ Yes ☒ No If Yes, Category:

County: Simpson
Nonattainment Area ☒ N/A □ PM₁₀ □ PM₂.₅ □ CO □ NOₓ □ SO₂ □ Ozone □ Lead

PTE* greater than 100 tpy for any criteria air pollutant □ Yes ☒ No
If yes, for what pollutant(s)?
□ PM₁₀ □ PM₂.₅ □ CO □ NOₓ □ SO₂ □ VOC

PTE* greater than 250 tpy for any criteria air pollutant □ Yes ☒ No
If yes, for what pollutant(s)?
□ PM₁₀ □ PM₂.₅ □ CO □ NOₓ □ SO₂ □ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) □ Yes ☒ No
If yes, list which pollutant(s):

PTE* greater than 25 tpy for combined HAP □ Yes ☒ No

*PTE does not include self-imposed emission limitations.

Description of Facility:
RKW North America, Inc. manufactures films for laminating, food packaging, and industrial applications. The films and applications include monolayer and coextruded technical films, hygiene films, barrier films, polyethylene films, lamination films, shrink films, metalized films, synthetic roofing underlayments, high speed films, hot fill films, lidding films, and surface protection films.
SECTION 2 – CURRENT APPLICATION

 Permit Number: F-19-015 R1   Activities: APE20190005

 Received: September 20, 2019   Application Complete Date(s): September 23, 2019

 Permit Action: ☒ Initial  ☐ Renewal  ☒ Significant Rev  ☐ Minor Rev  ☐ Administrative

 Construction/Modification Requested? ☒Yes  ☐No

 Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action  ☐Yes  ☒No

 Description of Action:

 RKW North America submitted an application to the Kentucky Division for Air Quality to request the addition of a new 8-color flexographic press, a new RTO, and a doctor blade roller cleaner. The new press will be contained within a permanent total enclosure (PTE). The roller cleaner is a parts washer and an insignificant activity. Initial capture and destruction efficiency testing will be required for the new printer and RTO. These additions were originally processed as a minor revision as the conditions necessary for adding these kinds of units to the facility already existed in the permit and there would have been no significant changes to monitoring, reporting, or recordkeeping.

 Following the previous request, another request was made to increase the VOC emission limit from 50 tons per year to 90 tons per year. This request was processed as a significant revision.
SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit #01, Flexographic Printer and Emission Unit #06, 8-color Flexographic Printer

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Limit or Standard</th>
<th>Regulatory Basis for Emission Limit or Standard</th>
<th>Emission Factor Used and Basis</th>
<th>Compliance Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>90 tons per year</td>
<td>To preclude 401 KAR 52:020, Title V Permits</td>
<td>Material Balance &amp; SDS</td>
<td>RTO #1, 99.72% Capture 95.89% DRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RTO#2 Proposed 100% Capture 98% DRE</td>
</tr>
</tbody>
</table>

Initial Construction Date: EU 01, 2014; EU06 projected 09/2019

Process Description:
Flexographic Printing Press EU01
Control equipment: RTO #1 (EU02) Natural Gas, 1.5 MMBtu/hr
Control efficiency: 95%

8-color Flexographic Printer EU06
Control equipment: RTO #2 (EU07) Natural Gas, 1.7 MMBtu/hr, and a Permanent Total Enclosure
Control efficiency: 98%
Printer oven rated capacity: 1.975 MMBtu/hr, Natural Gas

State-Origin Requirement:
401 KAR 63:020, Potentially hazardous matter or toxic substances

Comments:
These emission units are flexographic printing presses with regenerate thermal oxidizers to control emissions. The capture efficiency for EU01 was tested using EPA method 204D for temporary total enclosures. EU06 has a permanent total enclosure that will need to be initially tested using EPA method 204. RTO destruction efficiency shall be tested every 5 years using EPA method 25A or an equivalent method approved by the Cabinet.

In the specific case of EU06, more ink is able to be used by the printer at lower print speeds. This was taken into consideration when calculating potential to emit by using the ink throughput at the lowest print speed to perform calculations.

---

Emission Unit #03, Boiler #1 and Emission Unit #04, Boiler #2

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Limit or Standard</th>
<th>Regulatory Basis for Emission Limit or Standard</th>
<th>Emission Factor Used and Basis</th>
<th>Compliance Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>0.56 lb/MMBtu</td>
<td>401 KAR 59:015, Section 4(1)(a)</td>
<td>AP-42 Chapter 1.4</td>
<td>Assumed based upon natural gas combustion</td>
</tr>
<tr>
<td>Opacity</td>
<td>20% opacity</td>
<td>401 KAR 59:015, Section 4(2)</td>
<td>N/A</td>
<td>Assumed based upon natural gas combustion</td>
</tr>
</tbody>
</table>
### Emission Unit #03, Boiler #1 and Emission Unit #04, Boiler #2

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₂</td>
<td>3.0 lbs/MMBtu</td>
<td>401 KAR 59:015, Section 5(1)(a)</td>
<td>AP-42 Chapter 1.4</td>
<td>Assumed based upon natural gas combustion</td>
</tr>
</tbody>
</table>

**Initial Construction Date:** EU03: 2012; EU04: 2012

**Process Description:**
Two Natural Gas fueled 2.14 MMBtu/hr Boilers

**Applicable Regulation:**
401 KAR 59:015, *New indirect heat exchangers*

**Comments:**
Emissions were estimated using AP-42.1.4 emission factors. Allowable emissions for the units are calculated using 401 KAR 59:015, Section 3(1) using the total rated heat input capacity of all affected facilities at a source. The sum of the total rated heat input capacity of all affected facilities is 4.28 MMBtu/hr (2.14 MMBtu/hr + 2.14 MMBtu/hr).
## SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

### Testing Requirements\Results

<table>
<thead>
<tr>
<th>Emission Unit(s)</th>
<th>Control Device</th>
<th>Parameter</th>
<th>Regulatory Basis</th>
<th>Frequency</th>
<th>Test Method</th>
<th>Permit Limit</th>
<th>Test Result</th>
<th>Thruput and Operating Parameter(s) Established During Test</th>
<th>Activity Graybar</th>
<th>Date of Compliance Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU01 Flexo Press</td>
<td>EU02 RTO#1</td>
<td>Destruction Efficiency</td>
<td>N/A</td>
<td>Initial and every 5 years</td>
<td>Method 25A</td>
<td>N/A</td>
<td>95.89% Destruction Efficiency</td>
<td>11 gallons per hour coating, 400 m²/min press speed, 1500 °F average temperature</td>
<td>CMN20150001</td>
<td>4/28/2015</td>
</tr>
<tr>
<td>EU01 Flexo Press</td>
<td>EU02 RTO#1</td>
<td>Capture Efficiency</td>
<td>N/A</td>
<td>Initial</td>
<td>Method 204D</td>
<td>N/A</td>
<td>99.72% Capture Efficiency</td>
<td>11 gallons per hour coating, 400 m²/min press speed</td>
<td>CMN20150001</td>
<td>4/28/2015</td>
</tr>
<tr>
<td>EU06 Flexo Press</td>
<td>EU07 RTO#2</td>
<td>Destruction Efficiency</td>
<td>N/A</td>
<td>Initial and every 5 years</td>
<td>Method 25A</td>
<td>N/A</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>EU06 Flexo Press</td>
<td>EU07 RTO#2</td>
<td>Capture Efficiency</td>
<td>N/A</td>
<td>Initial</td>
<td>Method 204</td>
<td>N/A</td>
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<td>TBD</td>
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</tbody>
</table>

**Footnotes:**
SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

<table>
<thead>
<tr>
<th>Emission and Operating Limit</th>
<th>Regulation</th>
<th>Emission Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 tpy of VOC emissions</td>
<td>To preclude the applicability of 401 KAR 52:020, Title V Permits</td>
<td>Source-wide</td>
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</tbody>
</table>

Table B - Summary of Applicable Regulations:

<table>
<thead>
<tr>
<th>Applicable Regulations</th>
<th>Emission Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>401 KAR 59:015 New indirect heat exchangers.</td>
<td>EU03, 04</td>
</tr>
<tr>
<td>State-Origin Requirement, 401 KAR 63:020 Potentially hazardous matter or toxic substances.</td>
<td>EU05, EU06, EU08</td>
</tr>
</tbody>
</table>

Table C - Summary of Precluded Regulations:

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Basis of Determination</th>
<th>Emission Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table D - Summary of Non Applicable Regulations:

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Basis of Determination</th>
<th>Emission Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Air Toxic Analysis

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances
The Division for Air Quality (Division) has performed SCREEn View on September 13, 2019 of potentially hazardous matter or toxic substances (Ethyl Acetate, Isopropanol, 1-Methoxy-2-Propanol) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

Single Source Determination
N/A
## SECTION 5 – PERMITTING HISTORY

<table>
<thead>
<tr>
<th>Permit</th>
<th>Permit type</th>
<th>Activity#</th>
<th>Complete Date</th>
<th>Issuance Date</th>
<th>Summary of Action</th>
<th>PSD/Syn Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-14-006</td>
<td>Initial</td>
<td>APE20130001</td>
<td>1/14/2014</td>
<td>4/18/2014</td>
<td>Initial Construction Permit</td>
<td>N/A</td>
</tr>
<tr>
<td>F-19-015</td>
<td>Renewal</td>
<td>APE20190001</td>
<td>3/20/2019</td>
<td>8/24/2019</td>
<td>Permit Renewal</td>
<td>N/A</td>
</tr>
</tbody>
</table>
SECTION 6 – PERMIT APPLICATION HISTORY

Permit Number: F-19-015  Activities: APE20190001
Received: January 28, 2019  Application Complete Date(s): March 20, 2019

Permit Action: ☐ Initial  ☒ Renewal  ☐ Significant Rev  ☐ Minor Rev  ☐ Administrative

Construction/Modification Requested?  ☐ Yes  ☒ No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action  ☐ Yes  ☒ No

Description of Action:

RKW North America submitted an application to the Kentucky Division for Air Quality to request the renewal of their air permit. With the renewal, was a request to change the facility’s name from RKW Danafilms to RKW North America Inc. In addition, two boilers, one parts washer and a baler were added to the permit. The baler and parts washer are insignificant activities.
APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS  – Ambient Air Quality Standards
BACT  – Best Available Control Technology
Btu   – British thermal unit
CAM   – Compliance Assurance Monitoring
CO    – Carbon Monoxide
Division – Kentucky Division for Air Quality
ESP   – Electrostatic Precipitator
GHG   – Greenhouse Gas
HAP   – Hazardous Air Pollutant
HF    – Hydrogen Fluoride (Gaseous)
MSDS  – Material Safety Data Sheets
mmHg  – Millimeter of mercury column height
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NOx   – Nitrogen Oxides
PM    – Particulate Matter
PM$_{10}$ – Particulate Matter equal to or smaller than 10 micrometers
PM$_{2.5}$ – Particulate Matter equal to or smaller than 2.5 micrometers
PSD   – Prevention of Significant Deterioration
PTE   – Potential to Emit, also Permanent Total Enclosure
RTO   – Regenerative Thermal Oxidizer
SO$_2$ – Sulfur Dioxide
TF    – Total Fluoride (Particulate & Gaseous)
VOC   – Volatile Organic Compounds
MMBtu/hr – million BTU per hour
Commonwealth of Kentucky
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

PRELIMINARY PERMIT DETERMINATION
Conditional Major, Construction / Operating
Permit: F-19-015 R1

ATTACHMENT C - DRAFT PERMIT
Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601
(502) 564-3999

AIR QUALITY PERMIT
Issued under 401 KAR 52:030

Permittee Name: RKW North America, Inc.
Mailing Address: 270 Reasonover Dr., Franklin, KY 42134

Source Name: RKW North America, Inc.
Mailing Address: 270 Reasonover Dr.
Franklin, KY 42134

Source Location: Same as Above

Permit ID: F-19-015 R1
Agency Interest #: 107116
Activity ID: APE20190005
Review Type: Conditional Major, Construction / Operating
Source ID: 21-213-00059

Regional Office: Bowling Green Regional Office
2642 Russellville Road
Bowling Green, KY 42101
(270) 746-7475

County: Simpson

Application Complete Date: March 20, 2019
Issuance Date: August 24, 2019
Revision Date: TBD
Expiration Date: August 24, 2024

Melissa Duff, Director
Division for Air Quality
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<table>
<thead>
<tr>
<th>SECTION</th>
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Version 3/8/18
SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Energy and Environment Cabinet (Cabinet) hereby authorizes the operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes (KRS) Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:030, Federally-enforceable permits for non-major sources.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.
SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

Emission Unit 01 (EU01) Flexographic Printer

Description:
Control equipment: Regenerative Thermal Oxidizer #1 (RTO) (EU02)
Control efficiency: 95%
RTO rated capacity: 1.5 MMBtu/hr
Fuel: Natural Gas
Construction commenced: 2014

Emission Unit 06 (EU06) 8-color Flexographic Printer

Description:
Control equipment: RTO #2 (EU07) and a Permanent Total Enclosure
Control efficiency: 98%
Printer oven rated capacity: 1.975 MMBtu/hr
RTO rated capacity: 1.7 MMBtu/hr
Fuel: Natural Gas
Construction Projected: September 2019

STATE-ORIGIN REQUIREMENTS:
401 KAR 63:020, Potentially hazardous matter or toxic substances

1. Operating Limitations:
   a. The permittee shall operate the thermal oxidizers at all times the printers are applying any material that contains VOC.

   b. The rate of materials used in affected facilities shall not produce emissions that exceed the source-wide emission limitations as described in Section D.

   c. Pressure differential across a permanent total enclosure, if established, shall be at least 0.007 in H₂O (0.013 mm Hg). The direction of airflow through all NDO (Natural Draft Openings) shall be into the enclosure during operation of affected units.

   Compliance Demonstration Method:
   See subsection 4. Specific Monitoring Requirements paragraphs e. and f.

2. Emission Limitations:
   a. See Section D for the source-wide VOC emission limitations.

   b. Based upon the emission rates of toxics and hazardous air pollutants determined by the Cabinet using information provided in the application and supplemental information submitted by the source, the Cabinet determines the affected facility to be in compliance with 401 KAR 63:020.
SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3. **Testing Requirements:**
   a. The permittee shall perform testing of the control equipment’s destruction efficiency using EPA Method 25A, or an alternate method approved by the Cabinet, once every five years.

   b. During the performance test, the permittee shall monitor and record the combustion zone temperature at least every 15 minutes during each of the tests runs.

   c. The permittee shall use the data collected during the performance test to calculate and record the average combustion temperature, this average combustion temperature is the minimum operating set point of the thermal oxidizer.

   d. For EU06 the permittee shall demonstrate initial compliance by performing an EPA method 204 test for permanent total enclosures.

   e. For EU06, the permittee shall perform initial testing of the control equipment’s destruction efficiency using EPA Method 25A, or an alternate method approved by the Cabinet pursuant to Section G. subsections 4. and 5. of this permit (F-19-015 R1).

   f. See Section G subsection 5. for general testing requirements.

4. **Specific Monitoring Requirements:**
   a. The permittee shall install, calibrate, maintain, and operate according to the manufacturer’s specifications temperature monitoring devices equipped with a continuous recorder while the thermal oxidizers are in use and controlling process emissions.

   b. The permittee shall monitor the temperature in the firebox of the thermal oxidizers or immediately downstream of the firebox before any substantial heat exchange occurs. Compliance shall be demonstrated by monitoring and recording the combustion temperature continuously. Continuous parameter monitoring shall be a minimum of recording the measured value at least once every 15 minutes.

   c. The permittee shall perform an electronic calibration at least semi-annually. Following the electronic calibration, conduct a temperature sensor validation check in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 30 degrees Fahrenheit of the process temperature sensor reading.

   d. The permittee shall conduct calibration and validation checks any time the sensor exceeds the manufacturer’s specified maximum operating temperature range or install a new temperature sensor.

   e. Average 1-hr pressure differentials shall be calculated at least once every 15 minutes using continuous monitoring data when any affected unit in a permanent total enclosure is operating. If the average 1-hr pressure differentials are at least 0.013 mm Hg (0.007 in. H₂O) into the enclosure, compliance is demonstrated.
SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

f. To measure pressure differential between the inside and outside of each permanent total enclosure, differential pressure gauges with continuous recording systems shall be installed, calibrated, maintained, and operated in accordance with manufacturer’s instructions.

5. Specific Recordkeeping Requirements:
   a. Records of the amounts of all coatings, additives, and solvents used per month and the VOC content of each material shall be maintained. Such records will contain as a minimum;
      (1) Purchase orders or receipts showing the amount of each VOC containing material used each month.
      (2) MSDS, Manufacturer’s Product Data Sheets, or the results of EPA reference test methods from which the VOC content of each material can be obtained.

b. The permittee shall keep monthly records of the usage of natural gas.

c. The permittee shall keep records of the intervals each day the presses are performing coating operations.

d. The permittee shall maintain a record of performance test date, the average combustion zone temperature measured and control efficiency of the thermal oxidizer, and all relevant supporting data.

e. The permittee shall maintain records of the following information for the regenerative thermal oxidizers:
   (1) The design or manufacturer’s specifications;
   (2) The operational procedures and preventive maintenance records;
   (3) The calibration records for the combustion temperature sensor, validation checks, and the subsequent accuracy audits;
   (4) Maintain a log of visual inspections of each temperature sensor if redundant temperature sensors are not used;
   (5) During coating operations, the combustion chamber temperature of the thermal oxidizers shall be recorded continuously;
   (6) All periods (during coating operations) during which the combustion chamber temperature of the thermal oxidizer is more than 28 degrees Celsius (50 degrees Fahrenheit) below the average combustion chamber temperature of the thermal oxidizer during the most recent performance test which demonstrated compliance.
   (7) During all periods (during coating operations) that the combustion chamber temperature of the thermal oxidizer is more than 28 degrees Celsius (50 degrees Fahrenheit) below the average combustion chamber temperature of the thermal oxidizer during the most recent performance test which demonstrated compliance, or during oxidizer malfunction, a daily log of the following information shall be kept:
      i. Whether any air emissions were visible from the facilities associated with the thermal oxidizer;
      ii. Whether visible emissions were normal for the process;
      iii. The cause of the visible emissions;
      iv. Corrective action(s) taken shall be recorded.
SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

(8) A control efficiency of 0% shall be assumed for all periods the thermal oxidizer is receiving emissions during which the combustion chamber temperature of the thermal oxidizer is more than 28 degrees Celsius (50 degrees Fahrenheit) below the average combustion chamber temperature of the thermal oxidizer during the most recent performance test.

f. All records shall be retained at the source for a period of five years.

g. For each capture system that is a permanent total enclosure, the permittee shall keep data and documentation used to support a determination that the capture system meets the criteria in Method 204 for a permanent total enclosure.

6. Specific Reporting Requirements:
Reporting of the following shall be done on a semi-annual basis:

a. The monthly hours coating operations were conducted;

b. Any deviations from requirements of section B shall be reported;

c. The VOC emissions for each month in the semi-annual period shall be reported;

d. The rolling 12 month total for VOC emissions during each month in the semi-annual period shall be reported;

e. See Section F for general reporting requirements.
SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Unit 03 (EU03)  Boiler #1

Description:
Rated capacity: 2.14 MMBtu/hr
Fuel: Natural Gas
Construction commenced: 2012

Emission Unit 04 (EU04)  Boiler #2

Description:
Rated capacity: 2.14 MMBtu/hr
Fuel: Natural Gas
Construction commenced: 2012

APPLICABLE REGULATIONS:
401 KAR 59:015, Nev Indirect Heat Exchangers

1. Operating Limitations:
The permittee shall comply with the requirements of subsection 2. Emission Limitations below.

2. Emission Limitations:
a. Pursuant to 401 KAR 59:015, Section 4(1), particulate emissions shall not exceed 0.56 lb/MMBtu,
b. Pursuant to 401 KAR 59:015, Section 4(2), emissions shall not exceed 20% opacity.
c. Pursuant to 401 KAR 59:015, Section 5(1), sulfur dioxide emissions shall not exceed 3.0 lb/MMBtu.

Compliance Demonstration Method:
These units are considered to be in compliance with the allowable SO₂, PM, and opacity limitations while burning natural gas.

3. Testing Requirements:
Testing shall be conducted, if required by the cabinet, in accordance with regulations 401 KAR 59:005 Section 2(2) and 401 KAR 50:045 Section 4.

4. Specific Monitoring Requirements:
The permittee shall monitor the amount of natural gas burned or operating hours on a monthly basis.

5. Specific Recordkeeping Requirements:
The permittee shall maintain records of the amount of natural gas burned or operating hours on a monthly basis.
SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

6. **Specific Reporting Requirements:**
   See Section F for general reporting requirements.
SECTION C - INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:030, Section 6. Although these activities are designated as insignificant the permittee must comply with the applicable regulation. Process and emission control equipment at each insignificant activity subject to an opacity standard shall be inspected monthly and a qualitative visible emissions evaluation made. Results of the inspection, evaluation, and any corrective action shall be recorded in a log.

<table>
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<tr>
<th>Description</th>
<th>Generally Applicable Regulation</th>
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SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS

1. As required by Section 1b of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26; compliance with annual emissions and processing limitations contained in this permit, shall be based on emissions and processing rates for any twelve (12) consecutive months.

2. VOC emissions, measured by applicable reference methods, or an equivalent or alternative method specified in 40 C.F.R. Chapter I, or by a test method specified in the state implementation plan shall not exceed the respective limitations specified herein.

3. Source-wide emissions of VOC shall not exceed 90 tons during any consecutive 12 month period.

Compliance Demonstration Method:
a. The following equation (or equivalent method) may be used to calculate VOC emissions from printing operations:

\[
\text{Monthly Printing VOC Emissions} = \sum_{i=1}^{n} M_i \rho_i (1 - C \times D)
\]

Where:
- \( M \) = pounds of VOC containing material \( i \) applied during the month.
- \( \rho \) = percent by weight of VOC in material \( i \), expressed as a decimal
- \( n \) = total number of materials
- \( C \) = Capture efficiency, expressed as decimal
- \( D \) = Control (destruction) efficiency, expressed as decimal

Source-wide VOC emissions \( = \sum \) [VOC emissions from printing and supporting activities] + \( \sum \) [VOC emissions from fuel combustion] + \( \sum \) [VOC emissions from Insignificant Activities]

b. Each month the VOC emissions are added to the previous eleven (11) monthly totals to provide a total of actual emissions for each consecutive twelve (12) month period.
SECTION E - SOURCE CONTROL EQUIPMENT REQUIREMENTS

Pursuant to 401 KAR 50:055, Section 2(5), at all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

1. Pursuant to Section 1b-IV-1 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030 Section 26, when continuing compliance is demonstrated by periodic testing or instrumental monitoring, the permittee shall compile records of required monitoring information that include:
   a. Date, place (as defined in this permit), and time of sampling or measurements;
   b. Analyses performance dates;
   c. Company or entity that performed analyses;
   d. Analytical techniques or methods used;
   e. Analyses results; and
   f. Operating conditions during time of sampling or measurement.

2. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of five (5) years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [401 KAR 52:030, Section 3(1)(f)1a, and Section 1a-7 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

3. In accordance with the requirements of 401 KAR 52:030, Section 3(1)f, the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times:
   a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation;
   b. To access and copy any records required by the permit;
   c. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.
Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency.

4. No person shall obstruct, hamper, or interfere with any Cabinet employee or authorized representative while in the process of carrying out official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

5. Summary reports of any monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit, unless otherwise stated in this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation [Sections 1b-V-1 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].
SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

6. The semi-annual reports are due by January 30th and July 30th of each year. All reports shall be certified by a responsible official pursuant to 401 KAR 52:030, Section 22. If continuous emission and opacity monitors are required by regulation or this permit, data shall be reported in accordance with the requirements of 401 KAR 59:005, General Provisions, Section 3(3). All deviations from permit requirements shall be clearly identified in the reports.

7. In accordance with the provisions of 401 KAR 50:055, Section 1, the owner or operator shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
   a. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
   b. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.

8. The permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken shall be submitted to the Regional Office listed on the front of this permit. Where the underlying applicable requirement contains a definition of prompt or otherwise specifies a time frame for reporting deviations, that definition or time frame shall govern. Where the underlying applicable requirement does not identify a specific time frame for reporting deviations, prompt reporting, as required by Sections 1b-V, 3 and 4 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26 shall be defined as follows:
   a. For emissions of a hazardous air pollutant or a toxic air pollutant (as identified in an applicable regulation) that continue for more than an hour in excess of permit requirements, the report must be made within 24 hours of the occurrence.
   b. For emissions of any regulated air pollutant, excluding those listed in F.8.a., that continue for more than two hours in excess of permit requirements, the report must be made within 48 hours.
   c. All deviations from permit requirements, including those previously reported, shall be included in the semiannual report required by F.6.

9. Pursuant to 401 KAR 52:030, Section 21, the permittee shall annually certify compliance with the terms and conditions contained in this permit by completing and returning a Compliance Certification Form (DEP 7007CC) (or an alternative approved by the regional office) to the Regional Office listed on the front of this permit in accordance with the following requirements:
   a. Identification of each term or condition;
   b. Compliance status of each term or condition of the permit;
   c. Whether compliance was continuous or intermittent;
   d. The method used for determining the compliance status for the source, currently and over the reporting period.
SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.

f. The certification shall be submitted by January 30th of each year. Annual compliance certifications shall be sent to the Division for Air Quality, Bowling Green Regional Office, 2642 Russellville Road, Bowling Green, KY 42101.

10. In accordance with 401KAR 52:030, Section 3(1)(d), the permittee shall provide the Division with all information necessary to determine its subject emissions within 30 days of the date the Kentucky Emissions Inventory System (KYEIS) emissions survey is mailed to the permittee. If a KYEIS emissions survey is not mailed to the permittee, then the permittee shall comply with all other emissions reporting requirements in this permit.

11. The Cabinet may authorize the temporary use of an emission unit to replace a similar unit that is taken off-line for maintenance, if the following conditions are met:
   a. The owner or operator shall submit to the Cabinet, at least ten (10) days in advance of replacing a unit, the appropriate Forms DEP7007A1 to DD that show:
      (1) The size and location of both the original and replacement units; and
      (2) Any resulting change in emissions;
   b. The potential to emit (PTE) of the replacement unit shall not exceed that of the original unit by more than twenty-five (25) percent of a major source threshold, and the emissions from the unit shall not cause the source to exceed the emissions allowable under the permit;
   c. The PTE of the replacement unit or the resulting PTE of the source shall not subject the source to a new applicable requirement;
   d. The replacement unit shall comply with all applicable requirements; and
   e. The source shall notify Regional office of all shutdowns and start-ups.
   f. Within six (6) months after installing the replacement unit, the owner or operator shall:
      (1) Re-install the original unit and remove or dismantle the replacement unit; or
      (2) Submit an application to permit the replacement unit as a permanent change.
SECTION G - GENERAL PROVISIONS

1. General Compliance Requirements

   a. The permittee shall comply with all conditions of this permit. A noncompliance shall be a violation of 401 KAR 52:030, Section 3(1)(b), and a violation of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act). Noncompliance with this permit is grounds for enforcement action including but not limited to the termination, revocation and reissuance, revision, or denial of a permit [Section 1a-2 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

   b. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance, shall not stay any permit condition [Section 1a-5 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

   c. This permit may be revised, revoked, reopened and reissued, or terminated for cause in accordance with 401 KAR 52:030, Section 18. The permit will be reopened for cause and revised accordingly under the following circumstances:

      (1) If additional applicable requirements become applicable to the source and the remaining permit term is three (3) years or longer. In this case, the reopening shall be completed no later than eighteen (18) months after promulgation of the applicable requirement. A reopening shall not be required if compliance with the applicable requirement is not required until after the date on which the permit is due to expire, unless this permit or any of its terms and conditions have been extended pursuant to 401 KAR 52:030, Section 12;

      (2) The Cabinet or the United States Environmental Protection Agency (U. S. EPA) determines that the permit must be revised or revoked to assure compliance with the applicable requirements;

      (3) The Cabinet or the U. S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

   Proceedings to reopen and reissue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Reopenings shall be made as expeditiously as practicable. Reopenings shall not be initiated before a notice of intent to reopen is provided to the source by the Division, at least thirty (30) days in advance of the date the permit is to be reopened, except that the Division may provide a shorter time period in the case of an emergency.

   d. The permittee shall furnish information upon request of the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the conditions of this permit [Sections 1a-6 and 7 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

   e. Emission units described in this permit shall demonstrate compliance with applicable requirements if requested by the Division [401 KAR 52:030, Section 3(1)(c)].
SECTION G - GENERAL PROVISIONS (CONTINUED)

f. The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the permitting authority [401 KAR 52:030, Section 7(1)].

g. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Section 1a-11 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

h. The permittee shall not use as a defense in an enforcement action the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Section 1a-3 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

i. All emission limitations and standards contained in this permit shall be enforceable as a practical matter. All emission limitations and standards contained in this permit are enforceable by the U.S. EPA and citizens except for those specifically identified in this permit as state-origin requirements. [Section 1a-12 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

j. This permit shall be subject to suspension if the permittee fails to pay all emissions fees within 90 days after the date of notice as specified in 401 KAR 50:038, Section 3(6) [Section 1a-9 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

k. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:030, Section 11(3)].

l. This permit does not convey property rights or exclusive privileges [Section 1a-8 of the Cabinet Provisions and Procedures for Issuing Federally-Enforceable Permits for Non-Major Sources incorporated by reference in 401 KAR 52:030, Section 26].

m. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.

n. Nothing in this permit shall alter or affect the authority of U.S. EPA to obtain information pursuant to Federal Statute 42 USC 7414, Inspections, monitoring, and entry.

o. Nothing in this permit shall alter or affect the authority of U.S. EPA to impose emergency orders pursuant to Federal Statute 42 USC 7603, Emergency orders.
SECTION G - GENERAL PROVISIONS (CONTINUED)

p. This permit consolidates the authority of any previously issued PSD, NSR, or Synthetic Minor source preconstruction permit terms and conditions for various emission units and incorporates all requirements of those existing permits into one single permit for this source.

q. Pursuant to 401 KAR 52:030, Section 11, a permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with:
   (1) Applicable requirements that are included and specifically identified in this permit; and
   (2) Non-applicable requirements expressly identified in this permit.

2. Permit Expiration and Reapplication Requirements

a. This permit shall remain in effect for a fixed term of five (5) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six (6) months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division [401 KAR 52:030, Section 12].

b. The authority to operate granted through this permit shall cease to apply if the source fails to submit additional information requested by the Division after the completeness determination has been made on any application, by whatever deadline the Division sets [401 KAR 52:030, Section 8(2)].

3. Permit Revisions

a. Minor permit revision procedures specified in 401 KAR 52:030, Section 14(3), may be used for permit revisions involving the use of economic incentive, marketable permit, emission trading, and other similar approaches, to the extent that these minor permit revision procedures are explicitly provided for in the State Implementation Plan (SIP) or in applicable requirements and meet the relevant requirements of 401 KAR 52:030, Section 14(2).

b. This permit is not transferable by the permittee. Future owners and operators shall obtain a new permit from the Division for Air Quality. The new permit may be processed as an administrative amendment if no other change in this permit is necessary, and provided that a written agreement containing a specific date for transfer of permit responsibility coverage and liability between the current and new permittee has been submitted to the permitting authority within ten (10) days following the transfer.
SECTION G - GENERAL PROVISIONS (CONTINUED)

4. Construction, Start-Up, and Initial Compliance Demonstration Requirements

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction of the equipment described herein, emission units EU06, 8 Color Flexographic Printer, and EU07, Regenerative Thermal Oxidizer, in accordance with the terms and conditions of this permit (F-19-015 R1).

a. Construction of any process and/or air pollution control equipment authorized by this permit shall be conducted and completed only in compliance with the conditions of this permit.

b. Within thirty (30) days following commencement of construction and within fifteen (15) days following start-up and attainment of the maximum production rate specified in the permit application, or within fifteen (15) days following the issuance date of this permit, whichever is later, the permittee shall furnish to the Regional Office listed on the front of this permit in writing, notification of the following:

(1) The date when construction commenced.
(2) The date of start-up of the affected facilities listed in this permit.
(3) The date when the maximum production rate specified in the permit application was achieved.

c. Pursuant to 401 KAR 52:030, Section 3(2), unless construction is commenced within eighteen (18) months after the permit is issued, or begins but is discontinued for a period of eighteen (18) months or is not completed within a reasonable timeframe then the construction and operating authority granted by this permit for those affected facilities for which construction was not completed shall immediately become invalid. Upon written request, the Cabinet may extend these time periods if the source shows good cause.

d. For those affected facilities for which construction is authorized by this permit, a source shall be allowed to construct with the draft permit. Pursuant to 401 KAR 50:055, Section 2(1)(a), an owner or operator of any affected facility subject to any standard within the administrative regulations of the Division for Air Quality shall demonstrate compliance with the applicable standard(s) within sixty (60) days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial start-up of such facility. Pursuant to 401 KAR 52:030, Section 3(3)(c), sources that have not demonstrated compliance within the timeframes prescribed in 401 KAR 50:055, Section 2(1)(a), shall operate the affected facility only for purposes of demonstrating compliance unless authorized under an approved compliance plan or an order of the cabinet.

e. This permit shall allow time for the initial start-up, operation, and compliance demonstration of the affected facilities listed herein. However, within sixty (60) days after achieving the maximum production rate at which the affected facilities will be operated but not later than 180 days after initial start-up of such facilities, the permittee shall conduct a performance demonstration on the affected facilities in accordance with 401 KAR 50:055, General compliance requirements. Testing must also be conducted in accordance with General Provisions G.5 of this permit.
SECTION G - GENERAL PROVISIONS (CONTINUED)

5. Testing Requirements

a. Pursuant to 401 KAR 50:045, Section 2, a source required to conduct a performance test shall submit a completed Compliance Test Protocol form, DEP form 6028, or a test protocol a source has developed for submission to other regulatory agencies, in a format approved by the cabinet, to the Division's Frankfort Central Office a minimum of sixty (60) days prior to the scheduled test date. Pursuant to 401 KAR 50:045, Section 7, the Division shall be notified of the actual test date at least Thirty (30) days prior to the test.

b. Pursuant to 401 KAR 50:045, Section 5, in order to demonstrate that a source is capable of complying with a standard at all times, any required performance test shall be conducted under normal conditions that are representative of the source's operations and create the highest rate of emissions. If [When] the maximum production rate represents a source's highest emissions rate and a performance test is conducted at less than the maximum production rate, a source shall be limited to a production rate of no greater than 110 percent of the average production rate during the performance tests. If and when the facility is capable of operation at the rate specified in the application, the source may retest to demonstrate compliance at the new production rate. The Division for Air Quality may waive these requirements on a case-by-case basis if the source demonstrates to the Division's satisfaction that the source is in compliance with all applicable requirements.

c. Results of performance test(s) required by the permit shall be submitted to the Division by the source or its representative within forty-five days or sooner if required by an applicable standard, after the completion of the fieldwork.

6. Acid Rain Program Requirements

If an applicable requirement of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act) is more stringent than an applicable requirement promulgated pursuant to Federal Statute 42 USC 7651 through 7651a (Title IV of the Act), both provisions shall apply, and both shall be state and federally enforceable.


a. Pursuant to 401 KAR 52:030, Section 23(1), an emergency shall constitute an affirmative defense to an action brought for noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or other relevant evidence that:
   (1) An emergency occurred and the permittee can identify the cause of the emergency;
SECTION G - GENERAL PROVISIONS (CONTINUED)

(2) The permitted facility was at the time being properly operated;
(3) During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and,
(4) The permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division within two (2) working days of the time when emission limitations were exceeded due to an emergency. The notice shall include a description of the emergency, steps taken to mitigate emissions, and the corrective actions taken.
(5) Notification of the Division does not relieve the source of any other local, state or federal notification requirements.

b. Emergency conditions listed in General Provision G.7.a above are in addition to any emergency or upset provision(s) contained in an applicable requirement [401 KAR 52:030, Section 23(3)].

c. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof [401 KAR 52:030, Section 23(2)].

8. Ozone depleting substances

a. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
   (1) Persons opening appliances for maintenance, service, repair, or disposal shall comply with the required practices contained in 40 CFR 82.156.
   (2) Equipment used during the maintenance, service, repair, or disposal of appliances shall comply with the standards for recycling and recovery equipment contained in 40 CFR 82.158.
   (3) Persons performing maintenance, service, repair, or disposal of appliances shall be certified by an approved technician certification program pursuant to 40 CFR 82.161.
   (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances (as defined at 40 CFR 82.152) shall comply with the recordkeeping requirements pursuant to 40 CFR 82.166.
   (5) Persons owning commercial or industrial process refrigeration equipment shall comply with the leak repair requirements pursuant to 40 CFR 82.156.
   (6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant shall keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.

b. If the permittee performs service on motor (fleet) vehicle air conditioners containing ozone-depleting substances, the source shall comply with all applicable requirements as specified in 40 CFR 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.
SECTION G - GENERAL PROVISIONS (CONTINUED)


   a. The permittee shall comply with all applicable requirements of 401 KAR Chapter 68, Chemical Accident Prevention, which incorporates by reference 40 CFR Part 68, Risk Management Plan provisions. If required, the permittee shall comply with the Risk Management Program and submit a Risk Management Plan to U.S. EPA using the RMP* eSubmit software.

   b. If requested, submit additional relevant information to the Division or the U.S. EPA.
SECTION H - ALTERNATE OPERATING SCENARIOS
N/A

SECTION I - COMPLIANCE SCHEDULE
N/A
Commonwealth of Kentucky
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

PRELIMINARY PERMIT DETERMINATION
Conditional Major, Construction / Operating
Permit: F-19-015 R1

ATTACHMENT D - PERMIT APPLICATION
September 19, 2019

William Parsons  
Kentucky Department for Environmental Protection  
Division for Air Quality (KDAQ)  
300 Sower Boulevard, 2nd Floor  
Frankfort, KY 40601

RE: Construction Permit Application, Permit F-14-0006  
    RKW North America, Inc.  
    Source A.I# 107116  
    Franklin, KY

Dear Mr. Parsons:

We request to increase our source-wide VOC emission limit from 50 to 90 tons per consecutive 12-month period. A DEP7007AI Form is included.

Please call either Mark Reinke of my staff at (270) 598-7700 or Mike Vergamini of EnSafe Inc. at (615) 255-9300.

Sincerely,

Kenneth Budlong  
General Manager

Enclosures
### DEP7007AI

#### Administrative Information
- **Section A1.1: Source Information**
- **Section A1.2: Applicant Information**
- **Section A1.3: Owner Information**
- **Section A1.4: Type of Application**
- **Section A1.5: Other Required Information**
- **Section A1.6: Signature Block**
- **Section A1.7: Notes, Comments, and Explanations**

#### Source Name:
- **RKW North America, Inc.**

#### KY EIS (AFS) #:
- **21-213-00059**

#### Permit #:
- **F-14-006**

#### Agency Interest (AI) ID:
- **107116**

#### Date:
- **9/19/2019**

### Section A1.1: Source Information

<table>
<thead>
<tr>
<th>Physical Location Address:</th>
<th>Street: 270 Reasonover Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>City: Franklin</td>
<td>County: Simpson</td>
</tr>
<tr>
<td>Street or P.O. Box: 270 Reasonover Drive</td>
<td>State: Simpson</td>
</tr>
<tr>
<td>City: Franklin</td>
<td>Zip Code: 42134</td>
</tr>
</tbody>
</table>

#### Standard Coordinates for Source Physical Location

- **Longitude:** 36.790636 (decimal degrees)
- **Latitude:** -86.558233 (decimal degrees)

#### Primary (NAICS) Category:
- **Plastics Packaging Film and Sheet (including Laminated) Manufacturing**

#### Primary NAICS #:
- **326112**
<table>
<thead>
<tr>
<th>Classification (SIC) Category:</th>
<th>Paper: Coated and laminated packaging</th>
<th>Primary SIC #: 2371</th>
</tr>
</thead>
</table>

**Briefly discuss the type of business conducted at this site:**

Manufacture of food grade plastic film packaging.

<table>
<thead>
<tr>
<th>Description of Area Surrounding Source:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Area</td>
<td><em>X</em> Industrial Park</td>
</tr>
<tr>
<td>Urban Area</td>
<td>___ Industrial Area</td>
</tr>
<tr>
<td>Residential Area</td>
<td>___ Commercial Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is any part of the source located on federal land?</th>
<th>Yes or No</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Yes</em></td>
<td><em>No</em></td>
</tr>
</tbody>
</table>

| Number of Employees: | 70 |

<table>
<thead>
<tr>
<th>Approximate distance to nearest residence or commercial property:</th>
<th>___ 470 feet</th>
</tr>
</thead>
</table>

| Property Area: | ___ 30 Ares |

<table>
<thead>
<tr>
<th>Is this source portable?</th>
<th>Yes or No</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Yes</em></td>
<td><em>X</em> No</td>
</tr>
</tbody>
</table>

**What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?**

<table>
<thead>
<tr>
<th>NPDES/KPDES:</th>
<th>Currently Hold</th>
<th>Need</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>X</em> Currently Hold</td>
<td>___ Need</td>
<td><em>N/A</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solid Waste:</th>
<th>Currently Hold</th>
<th>Need</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>X</em> Currently Hold</td>
<td>___ Need</td>
<td><em>N/A</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCRA:</th>
<th>Currently Hold</th>
<th>Need</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>X</em></td>
<td><em>X</em> Currently Hold</td>
<td>___ Need</td>
<td><em>N/A</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UST:</th>
<th>Currently Hold</th>
<th>Need</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>X</em></td>
<td><em>X</em> Currently Hold</td>
<td>___ Need</td>
<td><em>N/A</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Regulated Waste Activity:</th>
<th>Mixed Waste Generator</th>
<th>Generator</th>
<th>Recycler</th>
<th>Other:</th>
</tr>
</thead>
</table>
### Section A1.2: Applicant Information

<table>
<thead>
<tr>
<th>Applicant Name:</th>
<th>RKW North America Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title: (if individual)</td>
<td></td>
</tr>
<tr>
<td>Mailing Address:</td>
<td></td>
</tr>
<tr>
<td>Street or P.O. Box:</td>
<td>270 Reasonover Drive</td>
</tr>
<tr>
<td>City:</td>
<td>Franklin</td>
</tr>
<tr>
<td>State:</td>
<td>KY</td>
</tr>
<tr>
<td>Zip Code:</td>
<td>42134</td>
</tr>
<tr>
<td>Email: (if individual)</td>
<td></td>
</tr>
<tr>
<td>Phone:</td>
<td>(270) 598-7700</td>
</tr>
</tbody>
</table>

### Technical Contact

<table>
<thead>
<tr>
<th>Name:</th>
<th>Mark Reinke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Mailing Address:</td>
<td></td>
</tr>
<tr>
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<tr>
<td>Zip Code:</td>
<td>42134</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:mark.reinke@rkw-group.com">mark.reinke@rkw-group.com</a></td>
</tr>
<tr>
<td>Phone:</td>
<td>(270) 598-7700</td>
</tr>
</tbody>
</table>

### Air Permit Contact for Source

<table>
<thead>
<tr>
<th>Name:</th>
<th>Same as technical contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td></td>
</tr>
<tr>
<td>Mailing Address:</td>
<td></td>
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<tr>
<td>Zip Code:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
</tr>
<tr>
<td>Phone:</td>
<td></td>
</tr>
</tbody>
</table>
### Section AI.3: Owner Information

<table>
<thead>
<tr>
<th>Owner same as applicant</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>RKW North America, Inc.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Email:</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(270) 598-7700</td>
</tr>
</tbody>
</table>

List names of owners and officers of the company who have an interest in the company of 5% or more.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RKW North America, Inc.</td>
</tr>
<tr>
<td></td>
<td>Parent Company - 100%</td>
</tr>
</tbody>
</table>

|                        |                        |
|                        |                        |
|                        |                        |
### Section AI.4: Type of Application

<table>
<thead>
<tr>
<th>Current Status:</th>
<th><em>Title V</em></th>
<th>X Conditional Major</th>
<th><em>State-Origin</em></th>
<th><em>General Permit</em></th>
<th><em>Registration</em></th>
<th><em>None</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Requested Action: (check all that apply)</td>
<td><em>Name Change</em></td>
<td><em>Initial Registration</em></td>
<td>X Significant Revision</td>
<td><em>Renewal Permit</em></td>
<td><em>Revised Registration</em></td>
<td><em>Minor Revision</em></td>
</tr>
<tr>
<td></td>
<td><em>502(b)(10) Change</em></td>
<td><em>Extension Request</em></td>
<td><em>Addition of New Facility</em></td>
<td><em>Revision</em></td>
<td><em>Off Permit Change</em></td>
<td><em>Landfill Alternate Compliance Submittal</em></td>
</tr>
<tr>
<td></td>
<td><em>Ownership Change</em></td>
<td><em>Closure</em></td>
<td><em>Modification of Existing Facilities</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requested Status:</td>
<td><em>Title V</em></td>
<td>X Conditional Major</td>
<td><em>State-Origin</em></td>
<td><em>PSD</em></td>
<td><em>NSR</em></td>
<td><em>Other:</em></td>
</tr>
</tbody>
</table>
### Section A1.5 Other Required Information

Indicate the documents attached as part of this application:

| _DEP7007A Indirect Heat Exchangers and Turbines | _DEP7007CC Compliance Certification |
| _DEP7007B Manufacturing or Processing Operations | _DEP7007DD Insignificant Activities |
| _DEP7007C Incinerators and Waste Burners | _DEP7007EE Internal Combustion Engines |
| _DEP7007F Episode Standby Plan | _DEP7007FF Secondary Aluminum Processing |
| _DEP7007J Volatile Liquid Storage | _DEP7007GG Control Equipment |
| _DEP7007K Surface Coating or Printing Operations | _DEP7007HH Haul Roads |
| _DEP7007L Mineral Processes | Confidentiality Claim |
| _DEP7007M Metal Cleaning Degreasers | Ownership Change Form |
| _DEP7007N Source Emissions Profile | Secretary of State Certificate |
| _DEP7007P Perchloroethylene Dry Cleaning Systems | Flowcharts or diagrams depicting process |
| _DEP7007R Emission Offset Credit | Digital Line Graphs (DLG) files of buildings, roads, etc. |
| _DEP7007S Service Stations | Site Map |
| _DEP7007T Metal Plating and Surface Treatment Operations | Map or drawing depicting location of facility |
| _DEP7007V Applicable Requirements and Compliance Activities | Safety Data Sheet (SDS) |
| _DEP7007Y Good Engineering Practice and Stack Height Determination | Emergency Response Plan |
| _DEP7007AA Compliance Schedule for Non-complying Emission Units | Other: |
| _DEP7007BB Certified Progress Report |

### Section A1.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

**Authorized Signature**

Kenneth Budlong
Type or Printed Name of Signatory

Date: 9-1-19

General Manager
Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Page _ of _
Section AI.7: Notes, Comments, and Explanations
July 12, 2019

Kentucky Department for Environmental Protection
Division for Air Quality (KDAQ)
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

RE: Construction Permit Application, Permit F-14-0006
    RKW North America, Inc.
    Source A.I# 107116
    Franklin, KY

Dear Mr. Parsons:

In accordance with 401 Kentucky Administrative Regulations 52:030, Section 4 (2)(c), RKW North America, Inc. in Bowling Green, Kentucky is hereby requesting a permit modification for the installation of a proposed Vistaflex CX-8 color flexographic printing press. This press will have integrated natural gas-fired drying features with a maximum heat input of 1.975 MMBtu per hour. The proposed press will be controlled by a regenerative thermal oxidizer to control volatile organic compound emissions. RKW requests a facility-wide VOC emission limit of no more than 90 tons per 12 consecutive months to remain a conditional major source.

The Vistaflex printing press has an operating bottleneck where the ink application rate (and VOC emission rate) decreases as the print speed increases. To evaluate potential emissions, RKW determined worst case emission rates occur at a reduced 450 meters of film per minute, but the press may operate at a maximum design rate of 800 meters of film per minute at a lower ink application rate.

Per a conversation with Mark Reinke, we are including our construction schedule in order to expedite the permitting process. We have scheduled the foundation slab construction to begin on September 16, 2019. The foundation construction for the equipment is scheduled to commence on September 21, 2019.

We appreciate your assistance with this permit application and if you have any questions or need additional information, please call either Mark Reinke of my staff at (270) 598-7700 or Mike Vergamini of EnSafe Inc. at (615) 255-9300.

Sincerely,

[Signature]

Kenneth Budlong
General Manager

Enclosures
DEP7007AI

Administrative Information

Section AI.1: Source Information

Section AI.2: Applicant Information

Section AI.3: Owner Information

Section AI.4: Type of Application

Section AI.5: Other Required Information

Section AI.6: Signature Block

Section AI.7: Notes, Comments, and Explanations

Source Name: RKW North America, Inc.

KY EIS (AFS) #: 21-213-00059

Permit #: F-14-006

Agency Interest (AI) ID: 107116

Date: 7/12/2019

Section AI.1: Source Information

Physical Location Address:
- Street: 270 Reasonover Drive
- City: Franklin
- County: Simpson
- Zip Code: 42134

Mailing Address:
- Street or P.O. Box: 270 Reasonover Drive
- City: Franklin
- State: Simpson
- Zip Code: 42134

Standard Coordinates for Source Physical Location

Longitude: 36.790636 (decimal degrees)
Latitude: -86.558233 (decimal degrees)

Primary (NAICS) Category: Plastics Packaging Film and Sheet (including Laminated) Manufacturing
Primary NAICS #: 326112
### Classification (SIC) Category:

| Paper: Coated and laminated packaging | Primary SIC #: 2671 |

### Briefly discuss the type of business conducted at this site:

**Manufacture of food grade plastic film packaging.**

### Description of Area Surrounding Source:

| _ Rural Area | __ Industrial Park | __ Residential Area | Is any part of the source located on federal land? | __ Yes | Number of Employees: 70 |
| __ Urban Area | __ Industrial Area | __ Commercial Area | | __ No |

### Approximate distance to nearest residence or commercial property:

- **470 feet**

### Property Area:

- **30 Ares**

### Is this source portable?

- __ Yes __ No

### What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

| NPDES/KPDES: | __ Currently Hold | __ Need | __ N/A |
| Solid Waste: | __ Currently Hold | __ Need | __ N/A |
| RCRA: | __ X Currently Hold | __ Need | __ N/A |
| UST: | __ Currently Hold | __ Need | __ N/A |

### Type of Regulated Waste Activity:

- __ Mixed Waste Generator __ Generator __ Recycler __ Other: ____________
- __ U.S. Importer of Hazardous Waste __ Transporter __ Treatment/Storage/Disposal Facility __ N/A
### Section AI.2: Applicant Information

<table>
<thead>
<tr>
<th>Applicant Name:</th>
<th>RKW North America Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title: (if individual)</td>
<td></td>
</tr>
<tr>
<td>Mailing Address:</td>
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</tr>
<tr>
<td></td>
<td>City: Franklin State: KY Zip Code: 42134</td>
</tr>
<tr>
<td>Email: (if individual)</td>
<td></td>
</tr>
<tr>
<td>Phone:</td>
<td>(270) 598-7700</td>
</tr>
</tbody>
</table>

### Technical Contact

| Name: | Mark Reinke |
| Title: | Project Manager |
| Mailing Address: | Street or P.O. Box: 270 Reasonover Drive |
| | City: Franklin State: KY Zip Code: 42134 |
| Email: | mark.reinke@rkw-group.com |
| Phone: | (270) 598-7700 |

### Air Permit Contact for Source

| Name: | Same as technical contact |
| Title: | |
| Mailing Address: | Street or P.O. Box: |
| | City: State: Zip Code: |
| Email: | |
| Phone: | |
### Section AI.3: Owner Information

<table>
<thead>
<tr>
<th>Owner same as applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: RKW North America, Inc.</td>
</tr>
<tr>
<td>Title:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mailing Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street or P.O. Box: 270 Reasonover Drive</td>
</tr>
<tr>
<td>City: Franklin</td>
</tr>
<tr>
<td>State: KY</td>
</tr>
<tr>
<td>Zip Code: 42134</td>
</tr>
</tbody>
</table>

| Email: |
| Phone: (270) 598-7700 |

List names of owners and officers of the company who have an interest in the company of 5% or more.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKW North America, Inc.</td>
<td>Parent Company - 100%</td>
</tr>
</tbody>
</table>
### Section AI.4: Type of Application

<table>
<thead>
<tr>
<th>Current Status:</th>
<th>__ Title V</th>
<th>X Conditional Major</th>
<th>__ State-Origin</th>
<th>__ General Permit</th>
<th>__ Registration</th>
<th>__ None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>__ Name Change</td>
<td>__ Initial Registration</td>
<td>X Significant Revision</td>
<td>__ Administrative Permit Amendment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>__ Renewal Permit</td>
<td>__ Revised Registration</td>
<td>__ Minor Revision</td>
<td>__ Initial Source-wide Operating Permit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>__ 502(b)(10) Change</td>
<td>__ Extension Request</td>
<td>__ Addition of New Facility</td>
<td>__ Portable Plant Relocation Notice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>__ Revision</td>
<td>__ Off Permit Change</td>
<td>__ Landfill Alternate Compliance Submittal</td>
<td>__ Modification of Existing Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>__ Ownership Change</td>
<td>__ Closure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requested Status:</th>
<th>__ Title V</th>
<th>X Conditional Major</th>
<th>__ State-Origin</th>
<th>__ PSD</th>
<th>__ NSR</th>
<th>__ Other: __________</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Is the source requesting a limitation of potential emissions?</th>
<th>__ Yes</th>
<th>__ No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pollutant:</th>
<th>Requested Limit:</th>
<th>Pollutant:</th>
<th>Requested Limit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>__ Particulate Matter</td>
<td></td>
<td>__ Single HAP</td>
<td></td>
</tr>
<tr>
<td>X Volatile Organic Compounds (VOC)</td>
<td>&lt; 90 tpy VOCs</td>
<td>__ Combined HAP</td>
<td></td>
</tr>
<tr>
<td>__ Carbon Monoxide</td>
<td></td>
<td>__ Air Toxics (40 CFR 68, Subpart F)</td>
<td></td>
</tr>
<tr>
<td>__ Nitrogen Oxides</td>
<td></td>
<td>__ Carbon Dioxide</td>
<td></td>
</tr>
<tr>
<td>__ Sulfur Dioxide</td>
<td></td>
<td>__ Greenhouse Gases (GHG)</td>
<td></td>
</tr>
<tr>
<td>__ Lead</td>
<td></td>
<td>__ Other</td>
<td></td>
</tr>
</tbody>
</table>

### For New Construction:

- **Proposed Start Date of Construction:** (MM/YYYY) 
  
- **Proposed Operation Start-Up Date:** (MM/YYYY) 

### For Modifications:

- **Proposed Start Date of Modification:** (MM/YYYY) 09/2019
  
- **Proposed Operation Start-Up Date:** (MM/YYYY) 06/2020

Applicant is seeking coverage under a permit shield.  

- __ Yes  

Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

Page __ of __
Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- DEP7007A Indirect Heat Exchangers and Turbines
- DEP7007B Manufacturing or Processing Operations
- DEP7007C Incinerators and Waste Burners
- DEP7007F Episode Standby Plan
- DEP7007J Volatile Liquid Storage
- DEP7007K Surface Coating or Printing Operations
- DEP7007L Mineral Processes
- DEP7007M Metal Cleaning Degreasers
- DEP7007N Source Emissions Profile
- DEP7007P Perchloroethylene Dry Cleaning Systems
- DEP7007Q Emission Offset Credit
- DEP7007S Service Stations
- DEP7007T Metal Plating and Surface Treatment Operations
- DEP7007V Applicable Requirements and Compliance Activities
- DEP7007Y Good Engineering Practice and Stack Height Determination
- DEP7007AA Compliance Schedule for Non-complying Emission Units
- DEP7007BB Certified Progress Report
- DEP7007CC Compliance Certification
- DEP7007DD Insignificant Activities
- DEP7007EE Internal Combustion Engines
- DEP7007FF Secondary Aluminum Processing
- DEP7007GG Control Equipment
- DEP7007HH Haul Roads
- Confidentiality Claim
- Ownership Change Form
- Secretary of State Certificate
- Flowcharts or diagrams depicting process
- Digital Line Graphs (DLG) files of buildings, roads, etc.
- Site Map
- Map or drawing depicting location of facility
- DEP7007V Applicable Requirements and Compliance Activities
- DEP7007Y Good Engineering Practice and Stack Height Determination
- DEP7007AA Compliance Schedule for Non-complying Emission Units
- DEP7007BB Certified Progress Report
- DEP7007CC Compliance Certification
- DEP7007DD Insignificant Activities
- DEP7007EE Internal Combustion Engines
- DEP7007FF Secondary Aluminum Processing
- DEP7007GG Control Equipment
- DEP7007HH Haul Roads
- Confidentiality Claim
- Ownership Change Form
- Secretary of State Certificate
- Flowcharts or diagrams depicting process
- Digital Line Graphs (DLG) files of buildings, roads, etc.
- Site Map
- Map or drawing depicting location of facility
- 6. Safety Data Sheet (SDS)
- Emergency Response Plan
- Other: ____________________________

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

[Signature]
Authorized Signature

Kenneth Budlong
Type or Printed Name of Signatory

[Date]
Date

General Manager
Title of Signatory

*Responsible official as defined by 401 KAR 52:001.
<table>
<thead>
<tr>
<th>Section AI.7: Notes, Comments, and Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
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<tr>
<td></td>
</tr>
</tbody>
</table>
## DEP7007DD

### Insignificant Activities

- **Section DD.1: Table of Insignificant Activities**
- **Section DD.2: Signature Block**
- **Section DD.3: Notes, Comments, and Explanations**

### Source Name:
RKW North America Inc.

<table>
<thead>
<tr>
<th>KY EIS (AFS) #</th>
<th>PERMIT #</th>
<th>Agency Interest (AI) ID</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-213-00059</td>
<td>F-14-006</td>
<td>107116</td>
<td>7/12/2019</td>
</tr>
</tbody>
</table>

### Section DD.1: Table of Insignificant Activities

*Identify each activity with a unique Insignificant Activity number (IA #); for example: 1, 2, 3… etc.

<table>
<thead>
<tr>
<th>Insignificant Activity #</th>
<th>Description of Activity including Rated Capacity</th>
<th>Serial Number or Other Unique Identifier</th>
<th>Applicable Regulation(s)</th>
<th>Calculated Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doctor blade roller cleaner</td>
<td></td>
<td>401 KAR 59:185, section 8</td>
<td>&lt; 5 tpy any criteria pollutant, &lt;1000 lbs HAPs</td>
</tr>
<tr>
<td>Insignificant Activity #</td>
<td>Description of Activity including Rated Capacity</td>
<td>Serial Number or Other Unique Identifier</td>
<td>Applicable Regulation(s)</td>
<td>Calculated Emissions</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
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</tr>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section DD.2: Signature Block**

I, THE UNDERSIGNED, HEREBY CERTIFY UNDER PENALTY OF LAW, THAT I AM A RESPONSIBLE OFFICIAL, AND THAT I HAVE PERSONALLY EXAMINED, AND AM FAMILIAR WITH, THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ITS ATTACHMENTS. BASED ON MY INQUIRY OF THOSE INDIVIDUALS WITH PRIMARY RESPONSIBILITY FOR OBTAINING THE INFORMATION, I CERTIFY THAT THE INFORMATION IS ON KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE OR INCOMPLETE INFORMATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT.

By: [Signature]

Authorized Signature

Date: 7-11-19

Kenneth Budlong

General Manager

Type/Print Name of Signatory

Title of Signatory

Page 2 of 2
**DEP7007K**

Surface Coating or Printing Operations

---

**Section K.1: Process Information**

- Emission Unit #: EU02
- Emission Unit Name: Flexographic Printing
- Coating/Printing Line Name: Vistaflex 8-Color Printing Line
- Proposed/Actual Date of Construction: September 21, 2019
- List Applicable Regulations:
- Describe Overall Process: 8-color flexographic print line with lacquer and laminate adhesive options

---

**Section K.2: Coating Operations**

**Section K.3: Other Operations**

**Section K.4: Coatings/Printing Materials as Applied**

**Section K.5: HAP-containing Coatings/Printing Materials**

**Section K.6: Notes, Comments, and Explanations**

---

**Additional Documentation**

- Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG.
- Attach SDS or Technical Sheets for all Coating/Printing Materials.
- Attach a flow diagram.
<table>
<thead>
<tr>
<th>Identify the Material that is Coated/Printed:</th>
<th>☑️ Plastics</th>
<th>☐ Wood</th>
<th>☐ Foil</th>
<th>☐ Paper</th>
<th>☐ Other Substrate</th>
</tr>
</thead>
</table>

**Provide detailed description of material coated/printed:**

| Food-grade plastic film packaging and shrink wrap |

**Provide approximate dimensions and range of sizes of parts being coated or printed:**

| Typical 206mm X 25,000m film rolls, net finished weight 75 kg each. Maximum printing width of 2,200mm film. |

**Identify the Type of Operation:**

| ☑️ Continuous | ☐ Batch | ☐ Other: |

**Describe Surface Preparation/Pretreatment Steps:**

| Film roll unwinding |

**For Coating Operations:**

<table>
<thead>
<tr>
<th>☐ Spray</th>
<th>☐ Flow</th>
<th>☐ Dip tank</th>
<th>☐ Electrodeposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Brush</td>
<td>☐ Powder</td>
<td>☐ Roller Coat</td>
<td>☐ Other:</td>
</tr>
</tbody>
</table>

**For Printing Operations:**

(Select all that apply)

<table>
<thead>
<tr>
<th>☑️ Web</th>
<th>☑️ Rotogravure</th>
<th>☐ Heatset</th>
<th>☐ Lithographic</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Sheetfed</td>
<td>☐ Letterpress</td>
<td>☐ Non-heatset</td>
<td>☑️ Flexographic</td>
</tr>
<tr>
<td>☐ Other:</td>
<td>☐ Other:</td>
<td>☐ Other:</td>
<td>☐ Other:</td>
</tr>
</tbody>
</table>

**Describe Final Product:**

| Food-grade plastic film packaging and shrink wrap |

**Check the category that most closely describes this unit:**

<table>
<thead>
<tr>
<th>☐ Large Appliance Coating</th>
<th>☐ Auto or Light-Duty Truck Coating</th>
<th>☐ Metal Furniture Coating</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Beverage Can Coating</td>
<td>☐ Miscellaneous Metal Parts Coating</td>
<td>☐ Magnet Wire Insulation Coating</td>
</tr>
<tr>
<td>☐ Fabric, Vinyl, or Paper Coating</td>
<td>☐ Boat Manufacturing/Ship Repair</td>
<td>☐ Pressure Sensitive Tape and Label Coating</td>
</tr>
<tr>
<td>☐ Publication Rotogravure Printing</td>
<td>☐ Coating of Plastic Parts for Business Machines</td>
<td>☐ Flexible Vinyl and Urethane Coating and Printing</td>
</tr>
<tr>
<td>☑️ Graphic Arts using Rotogravure and Flexographic Printing</td>
<td>☐ Other:</td>
<td>☐ Other:</td>
</tr>
</tbody>
</table>
### Section K.2: Coating Operations

#### K.2A: For Spray Coating

<table>
<thead>
<tr>
<th>Gun/Booth ID</th>
<th>Describe Function</th>
<th>Type</th>
<th>Mode</th>
<th>Maximum Design Application Rate (gal/hr or lb/hr)</th>
<th>Describe how maximum rate was determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Conventional Air Gun
- Airless
- Electrostatic
- Aerosol Spray Can

<table>
<thead>
<tr>
<th>Type</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manual</td>
</tr>
</tbody>
</table>

- HVLP
- LVLP

- Testing
- Equipment Specification Sheet
- Estimation

If spray guns are used simultaneously, describe:

#### K.2B: For Brush Coating

**Describe Function:**

**Maximum Coating Application Rate:** (gal/hr)

#### K.2C: For Roller Coating

<table>
<thead>
<tr>
<th>Roller Coat ID</th>
<th>Describe Function</th>
<th>Maximum Coating Application Rate (gal/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8-color flexographic print operation</td>
<td>1.5 grams per square meter @ 800 m/min; 4.96 grams per square meter @ 450 m/min</td>
</tr>
</tbody>
</table>

- Testing
- Equipment Specification Sheet
- Estimation

- Testing
- Equipment Specification Sheet
- Estimation

- Testing
- Equipment Specification Sheet
- Estimation
### K.2D: For Powder Coating

<table>
<thead>
<tr>
<th>Powder Coat ID</th>
<th>Describe Function</th>
<th>Maximum Coating Application Rate ( \text{gal/hr or lb/hr} )</th>
<th>Describe how maximum rate was determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
</tbody>
</table>

If powder coating material is recycled, describe:

### K.2E: For Flow Coating

<table>
<thead>
<tr>
<th>Flow Coat ID</th>
<th>Describe Function</th>
<th>Maximum Coating Application Rate ( \text{gal/hr or lb/hr} )</th>
<th>Describe how maximum rate was determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
</tbody>
</table>

### K.2F: For Dip Tank/Electrodeposition Coating

<table>
<thead>
<tr>
<th>Tank ID</th>
<th>Describe Function</th>
<th>Maximum Make-up Rate ( \text{gal/hr or lb/hr} )</th>
<th>Describe how maximum rate was determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Testing \quad Estimation \quad Equipment Specification Sheet</td>
</tr>
</tbody>
</table>
## Section K.3: Other Operations

### K.3A: For Finishing

Describe Finishing Processes:

*Complete Form DEP7007B as applicable*

### K.3B: For Curing/Drying

Describe Curing/Drying Processes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Rated Capacity (MMBtu/hr)</th>
<th>Fuel</th>
<th>Control Device/Stack ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCD and Tunnel Drying</td>
<td>1.975</td>
<td>Natural Gas</td>
<td>ST02</td>
</tr>
</tbody>
</table>

### K.3C: For Purge

Type: ________________________________

Daily Usage: ________________________________ gal/day

### K.3D: For Clean-up

Type: □ Manual □ Automatic

Daily Usage: ________________________________ hrs/day

Operating Hours: ________________________________

### K.3E: For Other Equipment

Describe Processes: ________________________________
Section K.4: Coatings/Printing Materials As Applied

Include SDS or Technical Sheets for all coating/printing materials used.

<table>
<thead>
<tr>
<th>Trade Name of Material</th>
<th>Description (Identify as coating, ink, fountain solution, blanket wash, cleaning solvent, thinning solvent, auto wash, manual wash, etc.)</th>
<th>Emission Unit/Coating ID where material is used</th>
<th>SCC Code</th>
<th>SCC Code Units</th>
<th>Density (lb/gal)</th>
<th>Solid Content (lb/gal)</th>
<th>VOC Content (lb/gal)</th>
<th>Emission Factor for PM* (lb/SCC)</th>
<th>Transfer Efficiency (%)</th>
<th>Emission Factor for VOC (lb/SCC)</th>
<th>Capture Efficiency (%)</th>
<th>Control Device/Stack ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC208-1 SILVER 877 C</td>
<td>Ink</td>
<td>EU02</td>
<td>40500301</td>
<td>lbs/gallon ink</td>
<td>8.01</td>
<td>2.80</td>
<td>5.21</td>
<td>NA</td>
<td>65%</td>
<td>NA</td>
<td>100%</td>
<td>ST02</td>
</tr>
<tr>
<td>NC208 NC COLA RED</td>
<td>Ink</td>
<td>EU02</td>
<td>40500301</td>
<td>lbs/gallon ink</td>
<td>7.68</td>
<td>2.69</td>
<td>4.99</td>
<td>NA</td>
<td>65%</td>
<td>NA</td>
<td>100%</td>
<td>ST02</td>
</tr>
<tr>
<td>NC208 BLACK NOVOFLEX</td>
<td>Ink</td>
<td>EU02</td>
<td>40500301</td>
<td>lbs/gallon ink</td>
<td>8.26</td>
<td>2.89</td>
<td>5.37</td>
<td>NA</td>
<td>65%</td>
<td>NA</td>
<td>100%</td>
<td>ST02</td>
</tr>
<tr>
<td>Ethyl Acetate Blend</td>
<td>Solvent</td>
<td>EU02</td>
<td>40500301</td>
<td>lbs/gallon solvent</td>
<td>7.53</td>
<td>0</td>
<td>7.53</td>
<td>0</td>
<td>100% - assume no solvent remains on film</td>
<td>7.53</td>
<td>100%</td>
<td>ST02</td>
</tr>
<tr>
<td>Glycol Ether PE</td>
<td>Solvent</td>
<td>EU02</td>
<td>40500301</td>
<td>lbs/gallon solvent</td>
<td>7.53</td>
<td>0</td>
<td>7.53</td>
<td>0</td>
<td>100% - assume no solvent remains on film</td>
<td>7.53</td>
<td>100%</td>
<td>ST02</td>
</tr>
<tr>
<td>Duplicate Fluid 105C</td>
<td>Solvent</td>
<td>EU02</td>
<td>40500301</td>
<td>lbs/gallon solvent</td>
<td>6.65</td>
<td>0</td>
<td>6.65</td>
<td>0</td>
<td>100% - assume no solvent remains on film</td>
<td>6.65</td>
<td>100%</td>
<td>ST02</td>
</tr>
</tbody>
</table>

Emissions determined to be 650 pounds VOCs per hour, before controls, per vendor specifications.

*Emission factor for particulate matter (PM) should not include transfer efficiency.
### Section K.5: Hazardous Air Pollutant-containing Coatings/Printing Materials

List each individual hazardous air pollutant (HAP) contained in each material.

<table>
<thead>
<tr>
<th>Trade Name of Material</th>
<th>HAP Name</th>
<th>HAP CAS #</th>
<th>Identify Solid (S) or Volatile (V)</th>
<th>HAP % by weight</th>
<th>HAP Emission Factor (lb/SCC)</th>
<th>Control Device/Stack ID</th>
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No listed hazardous air pollutants in flexographic ink and solvent makeup.
### Section K.6: Notes, Comments, and Explanations

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<tr>
<td><strong>See attached emission calculations</strong></td>
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</table>
### N.1: Emission Summary

<table>
<thead>
<tr>
<th>Emission Unit #</th>
<th>Emission Unit Name</th>
<th>Process ID</th>
<th>Process Name</th>
<th>Control Device Name</th>
<th>Control Device ID</th>
<th>Stack ID</th>
<th>Maximum Design Capacity (SCC Units/hour)</th>
<th>Pollutant</th>
<th>Uncontrolled Emission Factor (lb/SCC Units)</th>
<th>Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)</th>
<th>Capture Efficiency (%)</th>
<th>Control Efficiency (%)</th>
<th>Hourly Emissions</th>
<th>Annual Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>RTO 2</td>
<td>CU02</td>
<td>ST02</td>
<td>59,400 sq m/hr @ maximum solvent load rate</td>
<td>VOCs</td>
<td>Varies on line speed 0.011 lb VOCs/sq m, max</td>
<td>mass balance</td>
<td>100.00%</td>
<td>98.00%</td>
<td>650</td>
<td>13</td>
<td>2847</td>
<td>56.94</td>
</tr>
</tbody>
</table>

---

Source Name: RKW North America, Inc.

KY EIS (AFS) #: 21-213-00059

Permit #: F-14-0006

Agency Interest (AI) ID: 107116

Date: 7/12/2019
## Section N.2: Stack Information

**UTM Zone:**

<table>
<thead>
<tr>
<th>Stack ID</th>
<th>Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack</th>
<th>Stack Physical Data</th>
<th>Stack UTM Coordinates</th>
<th>Stack Gas Stream Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST02</td>
<td>EU02</td>
<td>Equivalent Diameter (ft)</td>
<td>Height (ft)</td>
<td>Base Elevation (ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3</td>
<td>33</td>
<td>0</td>
</tr>
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</tbody>
</table>
### Section N.3: Fugitive Information

#### UTM Zone:

<table>
<thead>
<tr>
<th>Emission Unit #</th>
<th>Emission Unit Name</th>
<th>Process ID</th>
<th>Area Physical Data</th>
<th>Area UTM Coordinates</th>
<th>Area Release Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Length of the X Side (ft)</td>
<td>Length of the Y Side (ft)</td>
<td>Northing (m)</td>
</tr>
<tr>
<td>ST02</td>
<td>EU02</td>
<td></td>
<td>NA - fully enclosed</td>
<td>NA - fully enclosed</td>
<td>NA - fully enclosed</td>
</tr>
</tbody>
</table>


Capture efficiency TBD, but assumed 100%. This source will be installed as fully enclosed and compliant with EPA Method 204.
The Vistaflex has an operating bottleneck where it cannot apply a maximum coating application rate at higher print speeds - to apply more ink, the unit must operate at a lower print print speed.

To evaluate potential emissions, we are considering two operating scenarios - one where it can process a maximum 800 meters of film per minute, applying ink at 1.5 grams/square meter; and a second operating scenario, where it can apply ink at a higher rate, but the processing speed is reduced to 450 meters per minute.

The Vistaflex unit has a maximum printing width of 2200 mm film. The following calculations show that the highest hourly VOC rate is achieved at the higher solvent load rate, rather than the maximum print speed:

\[
\begin{align*}
800 \text{ m/min} & \times 2.2 \text{ m. width} \times 60 \text{ mins/hr} = 105,600 \text{ square meters/hr, maximum print speed} \\
450 \text{ m/min} & \times 2.2 \text{ m. width} \times 60 \text{ mins/hr} = 59,400 \text{ square meters/hr, maximum solvent loading rate} \\
1.5 \text{ grams/square meter @ 800 m/min, Vendor Specification} & = 0.00331 \text{ pounds ink/square meter @ 800 m/min} \\
4.96 \text{ grams/square meter @ 450 m/min, calculated @ 650 lbs VOC/hr} & = 0.01094 \text{ pounds ink/square meter @ 450 m/min} \\
105,600 \text{ square meters/hr, maximum print speed} & = 349.37 \text{ lbs VOCs/hr @ maximum printing speed} \\
59,400 \text{ square meters/hr, maximum solvent loading rate} & = 650.00 \text{ lbs VOCs/hr @ maximum solvent usage rate}
\end{align*}
\]

Vendor provided information indicates a maximum airflow rate of 15,000 scfm, and a maximum solvent throughput of 650 pounds per hour.

\[
\begin{align*}
\text{exhaust @ 100\% ink coverage (Potential emissions)} \\
15,000 \text{ ACFM} & \quad \text{total}
\end{align*}
\]

Solvent load: Vendor specification based on high solvent load operations scenario

\[
\begin{align*}
650 \text{ lbs volatiles/hr, before controls} \\
2847 \text{ tons/yr, before controls}
\end{align*}
\]

at 98% destruction efficiency,

\[
\begin{align*}
13 \text{ lbs volatiles/hr, after controls} \\
56.94 \text{ tons VOCs/yr, after controls}
\end{align*}
\]
### Section GG.1: General Information - Control Equipment

<table>
<thead>
<tr>
<th>Control Device ID #</th>
<th>Control Device Name</th>
<th>Manufacturer</th>
<th>Model Name/Serial #</th>
<th>Date Installed</th>
<th>Temperature (°F)</th>
<th>Flowrate (scfm @ 68°F)</th>
<th>Average Particle Diameter (µm)</th>
<th>Particle Density (lb/y²) or Specific Gravity</th>
<th>Gas Density (lb/y²)</th>
<th>Gas Moisture Content (%)</th>
<th>Gas Composition</th>
<th>Pressure Drop Range (in. H₂O)</th>
<th>Pollutants Collected/Controlled</th>
<th>Pollutant Removal (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU02</td>
<td>RTO 2</td>
<td>Relox Technik</td>
<td>REGENUS 2016/2 VH</td>
<td>Oct-2019</td>
<td>200</td>
<td>15,000</td>
<td></td>
<td></td>
<td>0.2 oz /scfm solvents</td>
<td>radial</td>
<td>VOCs</td>
<td></td>
<td>98%</td>
<td></td>
</tr>
</tbody>
</table>
## Section GG.7: Afterburner/Incinerator/Oxidizer

<table>
<thead>
<tr>
<th>Control Device ID #</th>
<th>Identify all Emission Units and Control Devices that Feed to Afterburner/Incinerator/Oxidizer</th>
<th>Identify Type: Afterburner, Incinerator, Oxidizer, or Other (specify)</th>
<th>Number of Burners</th>
<th>Burner Rating (BTU/hr)</th>
<th>Dimensions of Combustion Chamber (specify units)</th>
<th>Residence Time (sec)</th>
<th>Combustion Chamber Temperature (°F)</th>
<th>Type of Catalyst (if applicable)</th>
<th>Type of Heat Exchanger (if applicable)</th>
<th>Auxiliary Fuel</th>
<th>Identify Fuel Type</th>
<th>Higher Heating Value (MMBtu/scf)</th>
<th>Hourly Fuel Usage (scf/hr)</th>
<th>% Sulfur (Maximum)</th>
<th>% Sulfur (Average)</th>
<th>% Ash (Maximum)</th>
<th>% Ash (Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU02</td>
<td>EU02</td>
<td>RTO</td>
<td>1</td>
<td>1.70E+06</td>
<td>113.40 M³’3</td>
<td>1</td>
<td>1380-1650</td>
<td>Ceramic Honey Comb</td>
<td>Natural Gas</td>
<td>1020</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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### Section GG.12: Notes, Comments, and Explanations

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### Section V.1: Emission and Operating Limitation(s)

<table>
<thead>
<tr>
<th>Emission Unit #</th>
<th>Emission Unit Description</th>
<th>Applicable Regulation or Requirement</th>
<th>Pollutant</th>
<th>Emission Limit (if applicable)</th>
<th>Voluntary Emission Limit or Exemption (if applicable)</th>
<th>Operating Requirement or Limitation (if applicable)</th>
<th>Method of Determining Compliance with the Emission and Operating Requirement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility-Wide</td>
<td></td>
<td>401 KAR 52:030</td>
<td>VOC</td>
<td>&lt; 90 tons per year</td>
<td></td>
<td></td>
<td>Recordkeeping, monitoring, emission calculations, operation of regenerative thermal oxidizers</td>
</tr>
</tbody>
</table>

**Additional Documentation**

- Complete DEP7007AI

**Source Name:** RKW North America, Inc.

**KY EIS (AFS) #:** 21-213-00059

**Permit #:** F-14-0006

**Agency Interest (AI) ID:** 107116

**Date:** 7/12/2019
<table>
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<tr>
<th>Emission Unit #</th>
<th>Emission Unit Description</th>
<th>Applicable Regulation or Requirement</th>
<th>Pollutant</th>
<th>Emission Limit (if applicable)</th>
<th>Voluntary Emission Limit or Exemption (if applicable)</th>
<th>Operating Requirement or Limitation (if applicable)</th>
<th>Method of Determining Compliance with the Emission and Operating Requirement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Unit #</td>
<td>Emission Unit Description</td>
<td>Pollutant</td>
<td>Applicable Regulation or Requirement</td>
<td>Parameter Monitored</td>
<td>Description of Monitoring</td>
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</tr>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td></td>
<td>RTO Temperature</td>
<td>The RTO firebox temperature shall be monitored continuously when this press is in operation.</td>
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</tr>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td></td>
<td>RTO Temperature Calibration</td>
<td>The RTO shall be electronically calibrated at least semi-annually and any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.</td>
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</table>
### Section V.3: Recordkeeping Requirements

<table>
<thead>
<tr>
<th>Emission Unit #</th>
<th>Emission Unit Description</th>
<th>Pollutant</th>
<th>Applicable Regulation or Requirement</th>
<th>Parameter Recorded</th>
<th>Description of Recordkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 52:030, Section 26</td>
<td>RTO Operating temperatures, VOC emissions each month and rolling 12-month periods</td>
<td>Temperature records logs RTO inspection and maintenance logs, VOC emission calculation records, safety data sheets containing physical and chemical properties.</td>
</tr>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 52:030, Section 26</td>
<td>VOC emissions each month and rolling 12-month periods</td>
<td>Ink and solvent usage shall be monitored daily and recorded in a monthly log.</td>
</tr>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 52:030, Section 26</td>
<td>VOC emissions each month and rolling 12-month periods</td>
<td>Natural gas usage shall be calculated monthly assuming the maximum hourly heat input of the press, and associated VOC emissions shall be calculated and recorded in a monthly log.</td>
</tr>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 52:030, Section 26</td>
<td>VOC emissions each month and rolling 12-month periods</td>
<td>The combustion temperature shall be monitored continuously and recorded in monthly logs.</td>
</tr>
</tbody>
</table>
### Section V.4: Reporting Requirements

<table>
<thead>
<tr>
<th>Emission Unit #</th>
<th>Emission Unit Description</th>
<th>Pollutant</th>
<th>Applicable Regulation or Requirement</th>
<th>Parameter Reported</th>
<th>Description of Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 52:030, Section 26</td>
<td>VOC</td>
<td>Semiannual compliance reporting as described in Conditional Major Permit</td>
</tr>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 52:030, Section 21</td>
<td>VOC</td>
<td>Annual Compliance Certification reporting as described in Conditional Major Permit</td>
</tr>
</tbody>
</table>
# Section V.5: Testing Requirements

<table>
<thead>
<tr>
<th>Emission Unit #</th>
<th>Emission Unit Description</th>
<th>Pollutant</th>
<th>Applicable Regulation or Requirement</th>
<th>Parameter Tested</th>
<th>Description of Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU02</td>
<td>Flexographic Printing Press</td>
<td>VOCs</td>
<td>401 KAR 50:0055</td>
<td>VOC</td>
<td>Permanent Total Enclosure certification (EPA Method 204), RTO performance stack testing.</td>
</tr>
<tr>
<td>Section V.6: Notes, Comments, and Explanations</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
   Product name : NC 208-1 SILVER P 877 C
   Material : 10-414386-2.2260

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Use of the Substance/Mixture : Printing inks, varnishes and printing ink related material for professional users.

1.3 Details of the supplier of the safety data sheet
   Company : Siegwerk France S.A.S.
              Route de Taninges 13
              74105 Annemasse Cedex
   Telephone : +330450877400
   Telefax : +330450877401
   E-mail address of person responsible for the SDS : msds_info@siegwerk.com

1.4 Emergency telephone number
   +44 1235 239670 National Chemical Emergency Centre (NCEC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification (REGULATION (EC) No 1272/2008)
   Flammable liquids, Category 2
   H225: Highly flammable liquid and vapour.
   Eye irritation, Category 2
   H319: Causes serious eye irritation.
   Specific target organ toxicity - single exposure, Category 3, Central nervous system
   H336: May cause drowsiness or dizziness.

2.2 Label elements
   Labelling (REGULATION (EC) No 1272/2008)
   Hazard pictograms : ![Danger and Flammable icons]
   Signal word : Danger
   Hazard statements : H225 Highly flammable liquid and vapour.
H319  Causes serious eye irritation.
H336  May cause drowsiness or dizziness.

Precautionary statements:

Prevention:
P210   Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233   Keep container tightly closed.
P261   Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280   Wear protective gloves/ eye protection/ face protection.

Response:
P303 + P361 + P353   IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P370 + P378   In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Chemical nature: Printing ink based on metallic pigments

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>200-578-6</td>
<td>01-2119457610-43</td>
<td>Flam. Liq. 2; H225</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>01-2119475103-46</td>
<td>Flam. Liq. 2; H225</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td>1-Ethoxypropan-2-ol</td>
<td>1569-02-4</td>
<td>216-374-5</td>
<td>01-2119462792-32</td>
<td>Flam. Liq. 3; H226</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td>Propan-1-ol</td>
<td>71-23-8</td>
<td>200-746-9</td>
<td>01-2119486761-29</td>
<td>Flam. Liq. 2; H225</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1; H318</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>200-661-7</td>
<td>01-2119457558-25</td>
<td>Flam. Liq. 2; H225</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td>Substances with a workplace exposure limit:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>203-539-1</td>
<td></td>
<td>Flam. Liq. 3; H226</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Victim to lie down in the recovery position, cover and keep him warm. Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice. Show this safety data sheet to the doctor in attendance.

If inhaled: Move to fresh air. Keep patient warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact: Take off all contaminated clothing immediately. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

In case of eye contact: Remove contact lenses. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Seek medical advice.

If swallowed: If accidentally swallowed obtain immediate medical attention. Keep at rest. Rinse mouth with water. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: No information available.

Risks: No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Dry sand
Special powder against metal fire
Carbon dioxide (CO2)
ABC powder

Unsuitable extinguishing media: Water
5.2 Special hazards arising from the substance or mixture

5.3 Advice for firefighters

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Further information: Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Remove all sources of ignition. Ventilate the area. Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions: Do not let product enter drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Do not flush with water.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling: Avoid exceeding the given occupational exposure limits (see section 8). For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist.

Advice on protection against fire and explosion: Normal measures for preventive fire protection. Keep away from open flames, hot surfaces and sources of ignition.
Hygiene measures: Store personal protection equipment in a clean location away from the work area. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday. Keep away from food and drink.

Fire-fighting class: Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.

7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers: Keep containers tightly closed in a dry, cool and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. No smoking.

Advice on common storage: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions. Never allow product to get in contact with water during storage.

Storage class (TRGS 510): 3, Flammable liquids

7.3 Specific end use(s)
Specific use(s): Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>AGW</td>
<td>500 ppm</td>
<td>960 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Peak-limit: excursion factor (category) 2;(II)</td>
<td></td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>AGW</td>
<td>200 ppm</td>
<td>730 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Peak-limit: excursion factor (category) 2;(I)</td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>TWA</td>
<td>100 ppm</td>
<td>375 mg/m3</td>
</tr>
<tr>
<td>Further information</td>
<td>Identifies the possibility of significant uptake through the skin, Indicative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td>150 ppm</td>
<td></td>
<td></td>
<td>2000/39/EC</td>
</tr>
<tr>
<td>Substance name</td>
<td>CAS-No.</td>
<td>Control parameters</td>
<td>Sampling time</td>
<td>Basis</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
<td>--------------------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>Aluminium powder, in mixtures</td>
<td>7429-90-5</td>
<td>Aluminium: 200 µg/l (Urine)</td>
<td>Immediately after exposure or after working hours</td>
<td>TRGS 903</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>Acetone: 25 mg/l (Blood)</td>
<td>Immediately after exposure or after working hours</td>
<td>TRGS 903</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineering measures
Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Eye protection: Chemical resistant goggles must be worn.

Hand protection: The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into
consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. As the product is a mixture of several substances, the durability of the glove materials cannot be calculated in advance and has to be tested before use. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection:
Working clothes must not consist of textiles, which show a dangerous melting behaviour in case of fire. Skin should be washed after contact.

Protective measures:
Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>coloured</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>not determined</td>
</tr>
<tr>
<td>pH</td>
<td>not determined</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 38 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>-3 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not determined</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>not determined</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>not determined</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 1.100 hPa (50 °C)</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>not determined</td>
</tr>
<tr>
<td>Density</td>
<td>ca. 0.96 g/cm³ (20 °C)</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Auto-ignition temperature : not determined
Decomposition temperature : The substance or mixture is not classified self-reactive.
Viscosity
  Viscosity, kinematic : > 21 mm2/s (40 °C)
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under recommended storage conditions.

10.2 Chemical stability
No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions
Hazardous reactions : None known.

10.4 Conditions to avoid
Conditions to avoid : Protect from frost, heat and sunlight.

10.5 Incompatible materials
Materials to avoid : Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

10.6 Hazardous decomposition products
Stable under recommended storage conditions.

SECTION 11: Toxicological information

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the Regulation (EC) No. 1272/2008 and classified for toxicological hazards accordingly. See Sections 2 and 3 for details.

11.1 Information on toxicological effects

Skin corrosion/irritation

Product:
Remarks: This information is not available.

Serious eye damage/eye irritation

Product:
Remarks: This information is not available.
Respiratory or skin sensitisation

**Product:**
Remarks: This information is not available.

Germ cell mutagenicity

**Product:**
Genotoxicity in vitro : Remarks: Not classified due to lack of data.

Carcinogenicity

**Product:**
Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

Reproductive toxicity

**Product:**
Reproductive toxicity - Assessment : Fertility classification not possible from current data.

Aspiration toxicity

**Product:**
No aspiration toxicity classification

SECTION 12: Ecological information

Unless otherwise indicated, no data is available on the mixture itself. The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and classified for eco-toxicological hazards accordingly.

12.1 Toxicity

**Product:**
Toxicity to fish : Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available
Toxicity to algae : Remarks: No data available
Toxicity to bacteria : Remarks: No data available

12.2 Persistence and degradability

**Product:**
Biodegradability : Remarks: No data available
12.3 Bioaccumulative potential

**Product:**
- Bioaccumulation: Remarks: Does not bioaccumulate.

12.4 Mobility in soil

**Product:**
- Mobility: Remarks: Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination.

12.5 Results of PBT and vPvB assessment

**Product:**
- Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

**Product:**
- Additional ecological information: We have no quantitative data concerning the ecological effects of this product.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product:**
- The product should not be allowed to enter drains, water courses or the soil. Dispose of in accordance with local regulations.

**Contaminated packaging:**
- Packaging that is not properly emptied must be disposed of as the unused product. Empty containers can be landfilled after cleaning, when in compliance with local regulations.

**Waste Code:** 080312, waste ink containing dangerous substances

SECTION 14: Transport information

14.1 UN number

| ADN | UN 1210 |
| ADR | UN 1210 |
| IMDG | UN 1210 |
| IATA | UN 1210 |

14.2 UN proper shipping name

**ADN:** PRINTING INK
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

NC 208-1 SILVER P 877 C

Version 1.1  Revision Date 30.07.2018  Print Date 14.05.2019

ADR : PRINTING INK
IMDG : PRINTING INK
IATA : PRINTING INK, Printing ink

14.3 Transport hazard class(es)

ADR : 3
IMDG : 3
IATA : 3

14.4 Packing group

ADR
Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3
Remarks : Special Provision 640D

IMDG
Packing group : II
Hazard Identification Number : 33
Labels : 3

IATA (Cargo)
Packing instruction (cargo aircraft) : 364
Packing instruction (LQ) : Y341
Packing group : II
Labels : Flammable Liquids

IATA (Passenger)
Packing instruction (passenger aircraft) : 353
Packing instruction (LQ) : Y341
Packing group : II
Labels : Flammable Liquids

14.5 Environmental hazards

ADR
Environmentally hazardous : no

IMDG
Marine pollutant : no
14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

- REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

- Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable

- Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable


<table>
<thead>
<tr>
<th>P5c</th>
<th>FLAMMABLE LIQUIDS</th>
<th>Quantity 1</th>
<th>5.000 t</th>
<th>Quantity 2</th>
<th>50.000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water contaminating class (Germany)</td>
<td>WGK 1 slightly water endangering Classification according to AwSV, Annex 1 (5.2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volatile organic compounds</td>
<td>Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 69.44 % Remarks: VOC content excluding water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other regulations</td>
<td>Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15.2 Chemical safety assessment
A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.
SECTION 16: Other information

**Full text of H-Statements**

- **H225**: Highly flammable liquid and vapour.
- **H226**: Flammable liquid and vapour.
- **H318**: Causes serious eye damage.
- **H319**: Causes serious eye irritation.
- **H336**: May cause drowsiness or dizziness.

**Further information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
   Product name: NC 208 COLA RED
   Material: 11-817232-9.2260

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Use of the Substance/Mixture: Printing inks, varnishes and printing ink related material for professional users.

1.3 Details of the supplier of the safety data sheet
   Company: Siegwerk France S.A.S.
   Route de Taninges 13
   74105 Annemasse Cedex
   Telephone: +330450877400
   Telefax: +330450877401
   E-mail address of person responsible for the SDS: msds_info@siegwerk.com

1.4 Emergency telephone number
   +44 1235 239670 National Chemical Emergency Centre (NCEC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification (REGULATION (EC) No 1272/2008)
   Flammable liquids, Category 2 H225: Highly flammable liquid and vapour.
   Serious eye damage, Category 1 H318: Causes serious eye damage.
   Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.
   Specific target organ toxicity - single exposure, Category 3, Central nervous system H336: May cause drowsiness or dizziness.

2.2 Label elements
   Labelling (REGULATION (EC) No 1272/2008)
   Hazard pictograms:
   - Flammable liquid
   - Eye damage
   - Caution
   Signal word: Danger
Hazard statements:
H225 Highly flammable liquid and vapour.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.

Precautionary statements:
Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Chemical nature: Printing ink

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5 200-578-6 01-2119457610-43</td>
<td>Flam. Liq. 2; H225 Eye Irrit. 2; H319</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Propan-1-ol</td>
<td>71-23-8 200-746-9 01-2119486761-29</td>
<td>Flam. Liq. 2; H225 Eye Dam. 1; H318 STOT SE 3; H336</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6 205-500-4 01-2119475103-46</td>
<td>Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 3 - &lt; 10</td>
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<tr>
<td>Propyl acetate</td>
<td>109-60-4 203-686-1 01-2119484620-39</td>
<td>Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0 200-661-7 01-2119457558-25</td>
<td>Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Victim to lie down in the recovery position, cover and keep him warm. Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice. Show this safety data sheet to the doctor in attendance.

If inhaled: Move to fresh air. Keep patient warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact: Take off all contaminated clothing immediately. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

In case of eye contact: Remove contact lenses. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Seek medical advice.

If swallowed: If accidentally swallowed obtain immediate medical attention. Keep at rest. Rinse mouth with water. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: No information available.

Risks: No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
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Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: No hazardous combustion products are known

5.3 Advice for firefighters
Special protective equipment for firefighters: Use personal protective equipment.
Further information: Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions: Remove all sources of ignition. Ventilate the area. Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions
Environmental precautions: Do not let product enter drains. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean with detergents. Avoid solvents.

6.4 Reference to other sections
For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling: Avoid exceeding the given occupational exposure limits (see section 8). Smoking, eating and drinking should be prohibited in the application area. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist.

Advice on protection against fire and explosion: Take measures to prevent the build up of electrostatic charge. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than
the occupational exposure limits. Keep product and empty container away from heat and sources of ignition. No smoking.

Hygiene measures
Store personal protection equipment in a clean location away from the work area. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday. Keep away from food and drink.

Fire-fighting class
Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.

7.2 Conditions for safe storage, including any incompatibilities
Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep containers tightly closed in a dry, cool and well-ventilated place. Observe label precautions. No smoking. Prevent unauthorized access.

Advice on common storage
Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

Storage class (TRGS 510)
3, Flammable liquids

7.3 Specific end use(s)
Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>AGW</td>
<td>500 ppm 960 mg/m3</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>2; (II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission),. When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>AGW</td>
<td>200 ppm 730 mg/m3</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>2; (I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission),. When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>AGW</td>
<td>200 ppm 500 mg/m3</td>
<td>DE TRGS 900</td>
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<tr>
<td>Peak-limit:</td>
<td>2; (II)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
excursion factor
(category)

Further information
Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission),. When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Sampling time</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>Acetone: 25 mg/l</td>
<td>Immediately after exposure or after working hours</td>
<td>TRGS 903</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Blood)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acetone: 25 mg/l</td>
<td>Immediately after exposure or after working hours</td>
<td>TRGS 903</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Urine)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineering measures
Handle only in a place equipped with local exhaust (or other appropriate exhaust). Maintain air concentrations below occupational exposure standards.

Personal protective equipment
Eye protection : Chemical resistant goggles must be worn.

Hand protection
Remarks : The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. As the product is a mixture of several substances, the durability of the glove materials cannot be calculated in advance and has to be tested before use. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection : Working clothes must not consist of textiles, which show a dangerous melting behaviour in case of fire. Skin should be washed after contact.

Protective measures : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
Appearance : liquid

Colour : coloured

Odour : characteristic

Odour Threshold : not determined

pH : not determined

Melting point/range : Not applicable

Boiling point : > 38 °C

Flash point : 11 °C

Evaporation rate : not determined

Upper explosion limit : not determined

Lower explosion limit : not determined

Vapour pressure : < 1.100 hPa (50 °C)

Relative vapour density : not determined

Density : ca. 0.92 g/cm³ (20 °C)

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : not determined

Decomposition temperature : The substance or mixture is not classified self-reactive.

Viscosity
  Viscosity, kinematic : > 21 mm²/s (40 °C)

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under recommended storage conditions.

10.2 Chemical stability
No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions
Hazardous reactions : None known.
10.4 Conditions to avoid
Conditions to avoid : Protect from frost, heat and sunlight.

10.5 Incompatible materials
Materials to avoid : Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

10.6 Hazardous decomposition products
Stable under recommended storage conditions.

SECTION 11: Toxicological information

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the Regulation (EC) No. 1272/2008 and classified for toxicological hazards accordingly. See Sections 2 and 3 for details.

11.1 Information on toxicological effects

Acute toxicity

Product:
Acute dermal toxicity : Remarks: This information is not available.

Skin corrosion/irritation

Product:
Remarks: This information is not available.

Serious eye damage/eye irritation

Product:
Remarks: This information is not available.

Respiratory or skin sensitisation

Product:
Remarks: This information is not available.

Germ cell mutagenicity

Product:
Genotoxicity in vitro : Remarks: Not classified due to lack of data.

Carcinogenicity

Product:
Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

Reproductive toxicity

Product:
Reproductive toxicity - Assessment: Fertility classification not possible from current data.

STOT - single exposure

**Product:**
Remarks: No data available

STOT - repeated exposure

**Product:**
Remarks: No data available

Aspiration toxicity

**Product:**
No aspiration toxicity classification

SECTION 12: Ecological information

Unless otherwise indicated, no data is available on the mixture itself. The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and classified for eco-toxicological hazards accordingly.

12.1 Toxicity

**Product:**
Toxicity to fish: Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates: Remarks: No data available

Toxicity to algae: Remarks: No data available

Toxicity to bacteria: Remarks: No data available

12.2 Persistence and degradability

**Product:**
Biodegradability: Remarks: No data available

12.3 Bioaccumulative potential

**Product:**
Bioaccumulation: Remarks: Does not bioaccumulate.

12.4 Mobility in soil

**Product:**
Mobility: Remarks: Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may
result in ground-water contamination.

12.5 Results of PBT and vPvB assessment

**Product:**
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

**Product:**
Environmental fate and pathways : The product itself has not been tested.

Additional ecological information : We have no quantitative data concerning the ecological effects of this product.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product**
: The product should not be allowed to enter drains, water courses or the soil. Dispose of in accordance with local regulations.

**Contaminated packaging**
: Packaging that is not properly emptied must be disposed of as the unused product. Empty containers can be landfilled after cleaning, when in compliance with local regulations.

**Waste Code**
: 080312, waste ink containing dangerous substances

SECTION 14: Transport information

14.1 UN number

**ADN**
: UN 1210

**ADR**
: UN 1210

**IMDG**
: UN 1210

**IATA**
: UN 1210

14.2 UN proper shipping name

**ADN**
: PRINTING INK

**ADR**
: PRINTING INK

**IMDG**
: PRINTING INK

**IATA**
: PRINTING INK, Printing ink

14.3 Transport hazard class(es)
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14.4 Packing group

ADN
  Packing group: II
  Classification Code: F1
  Hazard Identification Number: 33
  Labels: 3
  Remarks: Special Provision 640D

ADR
  Packing group: II
  Classification Code: F1
  Hazard Identification Number: 33
  Labels: 3
  Tunnel restriction code: (D/E)
  Remarks: Special Provision 640D

IMDG
  Packing group: II
  Labels: 3
  EmS Code: F-E, S-D

IATA (Cargo)
  Packing instruction (cargo aircraft): 364
  Packing instruction (LQ): Y341
  Packing group: II
  Labels: Flammable Liquids

IATA (Passenger)
  Packing instruction (passenger aircraft): 353
  Packing instruction (LQ): Y341
  Packing group: II
  Labels: Flammable Liquids

14.5 Environmental hazards

ADN
  Environmentally hazardous: no

ADR
  Environmentally hazardous: no

IMDG
  Marine pollutant: no

14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable for product as supplied.
SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable


Quantity 1

Quantity 2

Highly flammable

5.000 t

50.000 t


FLAMMABLE LIQUIDS

5.000 t

50.000 t

Water contaminating class (Germany): WGK 3 highly water endangering

Classification according to AwSV, Annex 1 (5.2)

Volatile organic compounds:

Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

Volatile organic compounds (VOC) content: 67.08 %

Remarks: VOC content excluding water

Other regulations: Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16: Other information

Full text of H-Statements

H225: Highly flammable liquid and vapour.

H317: May cause an allergic skin reaction.

H318: Causes serious eye damage.

H319: Causes serious eye irritation.
H336 : May cause drowsiness or dizziness.

Further information
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name : NC 208 BLACK NOVOFLEX 03/17
Material : 12-912288-3.2260

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture : Printing inks, varnishes and printing ink related material for professional users.

1.3 Details of the supplier of the safety data sheet
Company : Siegwerk France S.A.S.
Route de Taninges 13
74105 Annemasse Cedex
Telephone : +330450877400
Telefax : +330450877401
E-mail address of person responsible for the SDS : msds_info@siegwerk.com

1.4 Emergency telephone number
+44 1235 239670 National Chemical Emergency Centre (NCEC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification (REGULATION (EC) No 1272/2008)
Flammable liquids, Category 2 H225: Highly flammable liquid and vapour.
Serious eye damage, Category 1 H318: Causes serious eye damage.
Specific target organ toxicity - single exposure, Category 3, Central nervous system H336: May cause drowsiness or dizziness.

2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms :

Signal word : Danger
Hazard statements : H225 Highly flammable liquid and vapour.
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H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.

Precautionary statements:
Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Chemical nature : Printing ink

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-1-ol</td>
<td>71-23-8</td>
<td>200-746-9 01-2119486761-29</td>
<td>Flam. Liq.; H225 Eye Dam. 1; H318 STOT SE 3; H336</td>
<td>&gt;= 20 - &lt; 30</td>
</tr>
<tr>
<td>1-Ethoxypropan-2-ol</td>
<td>1569-02-4</td>
<td>216-374-5 01-2119462792-32</td>
<td>Flam. Liq.; H226 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>200-578-6 01-2119457610-43</td>
<td>Flam. Liq.; H225 Eye Irrit. 2; H319</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>205-500-4 01-2119475103-46</td>
<td>Flam. Liq.; H225 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>200-661-7 01-2119457558-25</td>
<td>Flam. Liq.; H225 Eye Irrit. 2; H319 STOT SE 3; H336</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td>Propyl acetate</td>
<td>109-60-4</td>
<td>203-686-1</td>
<td>Flam. Liq.; H225 Eye Irrit. 2; H319</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Victim to lie down in the recovery position, cover and keep him warm.
Never give anything by mouth to an unconscious person.
When symptoms persist or in all cases of doubt seek medical advice.
Show this safety data sheet to the doctor in attendance.

If inhaled: Move to fresh air.
Keep patient warm and at rest.
If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact: Take off all contaminated clothing immediately.
Wash skin thoroughly with soap and water or use recognized skin cleanser.
Do NOT use solvents or thinners.

In case of eye contact: Remove contact lenses.
Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.
Seek medical advice.

If swallowed: If accidentally swallowed obtain immediate medical attention.
Keep at rest.
Rinse mouth with water.
Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: No information available.

Risks: No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: No hazardous combustion products are known

5.3 Advice for firefighters
Special protective equipment for firefighters: Use personal protective equipment.
Further information: Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions: Remove all sources of ignition. Ventilate the area. Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions
Environmental precautions: Do not let product enter drains. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean with detergents. Avoid solvents.

6.4 Reference to other sections
For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling: Avoid exceeding the given occupational exposure limits (see section 8). For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist.

Advice on protection against fire and explosion: Take measures to prevent the build up of electrostatic charge. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than
the occupational exposure limits. Keep product and empty container away from heat and sources of ignition. No smoking.

Hygiene measures: Store personal protection equipment in a clean location away from the work area. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday. Keep away from food and drink.

Fire-fighting class: Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep containers tightly closed in a dry, cool and well-ventilated place. Observe label precautions. No smoking. Prevent unauthorized access.

Advice on common storage: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

Storage class (TRGS 510): 3, Flammable liquids

7.3 Specific end use(s)
Specific use(s): Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Ethoxypropan-2-ol</td>
<td>1569-02-4</td>
<td>AGW</td>
<td>50 ppm 220 mg/m3</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission). Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Limit value for the sum of concentration in air of 1-ethoxypropan-2-ol and 2-ethoxy-1-methylethylacetate.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>AGW</td>
<td>500 ppm 960 mg/m3</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission). When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>AGW</td>
<td>400 ppm</td>
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</table>
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<table>
<thead>
<tr>
<th>Peak-limit: excursion factor (category)</th>
<th>1.500 mg/m³</th>
<th>900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Propan-2-ol</th>
<th>67-63-0</th>
<th>AGW</th>
<th>200 ppm</th>
<th>500 mg/m³</th>
<th>DE TRGS 900</th>
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</thead>
<tbody>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td>Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Sampling time</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>Acetone: 50 mg/l (Blood)</td>
<td>Immediately after exposure or after working hours</td>
<td>TRGS 903</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acetone: 50 mg/l (Urine)</td>
<td>Immediately after exposure or after working hours</td>
<td>TRGS 903</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

**Engineering measures**

Handle only in a place equipped with local exhaust (or other appropriate exhaust). Maintain air concentrations below occupational exposure standards.

**Personal protective equipment**

Eye protection: Chemical resistant goggles must be worn.

Hand protection

**Remarks**

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. As the product is a mixture of several substances, the durability of the glove materials cannot be calculated in advance and has to be tested before use. The breakthrough time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection:

Working clothes must not consist of textiles, which show a dangerous melting behaviour in case of fire.
Skin should be washed after contact.

Protective measures: Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- **Appearance**: liquid
- **Colour**: coloured
- **Odour**: characteristic
- **Odour Threshold**: not determined
- **pH**: not determined
- **Melting point/range**: Not applicable
- **Boiling point**: > 38 °C
- **Flash point**: 11 °C
- **Evaporation rate**: not determined
- **Upper explosion limit**: not determined
- **Lower explosion limit**: not determined
- **Vapour pressure**: < 1.100 hPa (50 °C)
- **Relative vapour density**: not determined
- **Density**: ca. 0.99 g/cm3 (20 °C)
- **Partition coefficient: n-octanol/water**: No data available
- **Auto-ignition temperature**: not determined
- **Decomposition temperature**: The substance or mixture is not classified self-reactive.
- **Viscosity**: Viscosity, kinematic: > 21 mm2/s (40 °C)
- **Explosive properties**: Not explosive
- **Oxidizing properties**: The substance or mixture is not classified as oxidizing.

9.2 Other information

No data available
SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under recommended storage conditions.

10.2 Chemical stability
No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions
Hazardous reactions : None known.

10.4 Conditions to avoid
Conditions to avoid : Protect from frost, heat and sunlight.

10.5 Incompatible materials
Materials to avoid : Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

10.6 Hazardous decomposition products
Stable under recommended storage conditions.

SECTION 11: Toxicological information

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the Regulation (EC) No. 1272/2008 and classified for toxicological hazards accordingly. See Sections 2 and 3 for details.

11.1 Information on toxicological effects

Acute toxicity

Product:
Acute dermal toxicity : Remarks: This information is not available.

Skin corrosion/irritation

Product:
Remarks: This information is not available.

Serious eye damage/eye irritation

Product:
Remarks: This information is not available.

Respiratory or skin sensitisation

Product:
Remarks: This information is not available.
Germ cell mutagenicity

**Product:**
Genotoxicity in vitro : Remarks: Not classified due to lack of data.

Carcinogenicity

**Product:**
Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

Reproductive toxicity

**Product:**
Reproductive toxicity - Assessment : Fertility classification not possible from current data.

STOT - single exposure

**Product:**
Remarks: No data available

STOT - repeated exposure

**Product:**
Remarks: No data available

Aspiration toxicity

**Product:**
No aspiration toxicity classification

SECTION 12: Ecological information

Unless otherwise indicated, no data is available on the mixture itself. The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and classified for ecotoxicological hazards accordingly.

12.1 Toxicity

**Product:**
Toxicity to fish : Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Toxicity to algae : Remarks: No data available

Toxicity to bacteria : Remarks: No data available
12.2 Persistence and degradability

**Product:**
Biodegradability : Remarks: No data available

12.3 Bioaccumulative potential

**Product:**
Bioaccumulation : Remarks: Does not bioaccumulate.

12.4 Mobility in soil

**Product:**
Mobility : Remarks: Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination.

12.5 Results of PBT and vPvB assessment

**Product:**
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

**Product:**
Environmental fate and pathways : The product itself has not been tested.

Additional ecological information : We have no quantitative data concerning the ecological effects of this product.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product**

The product should not be allowed to enter drains, water courses or the soil. Dispose of in accordance with local regulations.

Contaminated packaging : Packaging that is not properly emptied must be disposed of as the unused product. Empty containers can be landfilled after cleaning, when in compliance with local regulations.

Waste Code : 080312, waste ink containing dangerous substances

SECTION 14: Transport information

14.1 UN number
ADN : UN 1210
ADR : UN 1210
IMDG : UN 1210
IATA : UN 1210

14.2 UN proper shipping name

ADN : PRINTING INK
ADR : PRINTING INK
IMDG : PRINTING INK
IATA : PRINTING INK

14.3 Transport hazard class(es)

ADN : 3
ADR : 3
IMDG : 3
IATA : 3

14.4 Packing group

ADN
Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3
Remarks : Special Provision 640D

ADR
Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3
Tunnel restriction code : (D/E)
Remarks : Special Provision 640D

IMDG
Packing group : II
Labels : 3
EmS Code : F-E, S-D

IATA (Cargo)
Packing instruction (cargo aircraft) : 364
Packing instruction (LQ) : Y341
Packing group : II
Labels : Flammable Liquids

IATA (Passenger)
Packing instruction (passenger aircraft) : 353
Packing instruction (LQ) : Y341
Packing group : II
Labels : Flammable Liquids
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

NC 208 BLACK NOVFLEX 03/17
Version 1.0 Revision Date 10.03.2017 Print Date 14.05.2019

14.5 Environmental hazards

**ADN**
Environmentally hazardous : no

**ADR**
Environmentally hazardous : no

**IMDG**
Marine pollutant : no

14.6 Special precautions for use
Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable


<table>
<thead>
<tr>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.000 t</td>
<td>50.000 t</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>P5c</th>
<th>FLAMMABLE LIQUIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.000 t</td>
<td>50.000 t</td>
</tr>
</tbody>
</table>

Water contaminating class (Germany) : WGK 1 slightly water endangering Classification according VwVwS, Annex 4.

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 63.86 % Remarks: VOC content excluding water

Other regulations : Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.
15.2 Chemical safety assessment
A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16: Other information

Full text of H-Statements

<table>
<thead>
<tr>
<th>H225</th>
<th>Highly flammable liquid and vapour.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness.</td>
</tr>
</tbody>
</table>

Further information
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

DE / EN
SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier
Product name: Eastman EastaPure(TM) Ethyl Acetate

Product No.: EAN 900300. 20557-00, P2055700, P2055701, P2055703, E2055701

Synonyms, Trade Names: 20557-00

Additional identification
Chemical name: acetic acid ethyl ester
CAS-No.: 141-78-6

Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Solvent
Uses advised against: None known.

Details of the supplier of the safety data sheet
Manufacturer / Supplier
Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+1 423 229 2000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

Emergency telephone number:
For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

Hazard Classification:

Physical Hazards
Flammable liquids Category 2

Health Hazards
Serious Eye Damage/Eye Irritation Category 2A
Specific Target Organ Toxicity - Single Exposure Category 3

OSHA Specified Hazards: not applicable

Warning label items including precautionary statement:

Pictogram:
Signal Words: DANGER!

Hazard Statement(s):
H225: Highly flammable liquid and vapor.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.

Precautionary Statement:

Prevention:
P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting/equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P264: Wash hands thoroughly after handling.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P271: Use only outdoors or in a well-ventilated area.

Response:
P370 + 378: In case of fire: Use water spray, carbon dioxide, dry chemical or foam for extinction.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTER/doctor if you feel unwell.

Storage:
P403+P235: Store in a well-ventilated place. Keep cool.
P233: Keep container tightly closed.
P405: Store locked up.

Disposal:
P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC):
Prolonged or repeated skin contact may cause drying, cracking, or irritation.

SECTION 3: Composition/information on ingredients

Substances / Mixtures

General information:
### SECTION 4: First aid measures

**Description of first aid measures**

**Inhalation:** Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

**Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

**Skin contact:** Wash with soap and water. Get medical attention if symptoms occur.

**Ingestion:** Seek medical advice.

**Most important symptoms and effects, both acute and delayed:** May irritate and cause redness and pain.

**Indication of any immediate medical attention and special treatment needed**

**Hazards:** Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

**Treatment:** Treat symptomatically.

### SECTION 5: Firefighting measures

**General Fire Hazards:** Flammable liquid and vapor.

**Extinguishing media**

**Suitable extinguishing media:** Water spray. Dry chemicals. Carbon Dioxide. Foam.

**Unsuitable extinguishing media:** None known.

**Special hazards arising from the substance or mixture:** Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations.

**Advice for firefighters**

**Special fire fighting procedures:** Water may be ineffective in fighting the fire. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Personal precautions, protective equipment and emergency procedures:
Wear appropriate personal protective equipment.

Environmental Precautions:
Avoid release to the environment.

Methods and material for containment and cleaning up:
Eliminate sources of ignition. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

Notification Procedures:
In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

Precautions for safe handling:
Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities:
Keep container tightly closed and in a well-ventilated place.

Specific end use(s):
Solvent

SECTION 8: Exposure controls/personal protection

Control Parameters
Occupational Exposure Limits
Country specific exposure limits have not been established or are not applicable unless listed below.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethyl acetate</td>
<td>TWA</td>
<td>400 ppm</td>
<td>US. ACGIH Threshold Limit Values (01 2010)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>400 ppm 1,400 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
</tbody>
</table>

Exposure controls
Appropriate engineering controls:
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information:

Eye/face protection:
Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.
Skin protection
Hand Protection:  It is a good industrial hygiene practice to minimize skin contact. For operations where prolonged or repeated skin contact may occur, chemical-resistant gloves should be worn. Contact health and safety professional or manufacturer for specific information.

Other:  No data available.

Respiratory Protection:  If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures:  Observe good industrial hygiene practices.

Environmental Controls:  No data available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance
   Physical state:  liquid
   Form:  liquid
   Color:  Colorless
   Odor:  Sweet, ester
   Odor Threshold:  3.9 ppm
   pH:  No data available.
   Freezing Point:  -83 °C
   Boiling Point:  77 °C
   Flash Point:  -4 °C (Tag closed cup)
   Evaporation Rate:  4.1
   Flammability (solid, gas):  No data available.
   Flammability Limit - Upper (%):  No data available.
   Flammability Limit - Lower (%):  No data available.
   Vapor pressure:  99 mbar (20 °C)
   Vapor density (air=1):  3
   Specific Gravity:  0.902 (20 °C)
   Solubility(ies)
      Solubility in Water:  Moderate
      Solubility (other):  No data available.
   Partition coefficient (n-octanol/water):  Pow: 5.4 log Pow: 0.73
   Autoignition Temperature:  427 °C
   Decomposition Temperature:  (DTA) No exotherm to 500°C
   Dynamic viscosity:  0.45 mPa.s (20 °C)
   Kinematic viscosity:  Not determined.
Explosive properties: Not classified.
Oxidizing properties: Not classified.

Other information
Minimum ignition temperature: 485 °C (ASTM D2155)

SECTION 10: Stability and reactivity

Reactivity: None known.
Chemical Stability: Stable
Possibility of Hazardous Reactions: None known.
Conditions to Avoid: Heat, sparks, flames.
Incompatible Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

Information on likely routes of exposure
Inhalation: May cause drowsiness or dizziness.
Ingestion: None known.
Skin contact: Prolonged or repeated skin contact may cause drying, cracking, or irritation.
Eye contact: Causes serious eye irritation.

Information on toxicological effects

Oral Product: Oral LD-50: (Rat): 4,934 mg/kg
Dermal Product: Dermal LD-50: (Rabbit): > 20,000 mg/kg (highest dose tested)
Inhalation Product: LCLo (Rat, 6 h): 22.5 mg/l
Repeated dose toxicity Product: NOAEL (Rat(Male and Female), by gavage): 900 mg/kg LOAEL (Rat(Male and Female), by gavage): 3,600 mg/kg

Skin Corrosion/Irritation Product: (Rabbit): none
Serious Eye Damage/Eye Irritation Product: (Rabbit): slight
Respiratory or Skin Sensitization
Product: Skin Sensitization: (Guinea Pig): Not a skin sensitizer.

Carcinogenicity
Product: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Toxicity to reproduction
Product: No data available.

Developmental toxicity
Product: No data available.

Germ Cell Mutagenicity

In vitro
Product: Salmonella typhimurium assay (Ames test): negative
Mutagenicity - Mammalian: negative

In vivo
Product: Mammalian Erythrocyte Micronucleus Test oral: gavage (Hamster, Male and Female): negative

Specific Target Organ Toxicity - Single Exposure
Product: Inhalation - vapor: May cause drowsiness or dizziness.

Specific Target Organ Toxicity - Repeated Exposure
Product: No data available.

Aspiration Hazard
Product: not applicable

Other effects: No data available.

SECTION 12: Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: LC-50 (Fathead Minnow, 96 h): 230 mg/l

Aquatic Invertebrates
Product: EC-50 (daphnid, 48 h): 165 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: NOEC (32 d): 6.3 mg/l
Aquatic Invertebrates
Product: NOEC (daphnid, 21 d): 2.4 mg/l

Toxicity to Aquatic Plants
Product: EC-50 (Scenedesmus subspicatus, 48 h): 5,600 mg/l
NOEC (Algae (Pseudokirchneriella subcapitata), 72 h): 1,000 mg/l

Persistence and Degradability
Biodegradation
Product: Readily biodegradable

BOD/COD Ratio
Product: No data available.

Bioaccumulative Potential
Bioconcentration Factor (BCF)
Product: Potential to bioaccumulate is low.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: 0.73

Mobility in Soil: No data available.

Other Adverse Effects: No data available.

SECTION 13: Disposal considerations

Waste treatment methods
General information: No data available.

Disposal methods: Dispose of waste and residues in accordance with local authority requirements. Mix with compatible chemical which is less flammable and incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

SECTION 14: Transport information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company’s Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT
Reportable Quantity: 2,270 kg (Ethyl Acetate)
Possible Shipping Description(s):

UN 1173 Ethyl acetate 3 II
IMDG - International Maritime Dangerous Goods Code

Possible Shipping Description(s):

UN 1173 ETHYL ACETATE 3 II

IATA

Possible Shipping Description(s):

UN 1173 Ethyl acetate 3 II

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status: controlled

WHMIS (Canada) Hazard Classification: B/2, D/2/B

SARA 311-312 Hazard Classification(s):
- immediate (acute) health hazard
- delayed (chronic) health hazard
- fire hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List

NONE

OSHA: hazardous

TSCA (US Toxic Substances Control Act): This product is listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): This product is listed on the DSL. Any impurities present in this product are exempt from listing.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): This product is listed on AICS or otherwise complies with NICNAS.

MITI (Japanese Handbook of Existing and New Chemical Substances): This product is listed in the Handbook or has been approved in Japan by new substance notification.

SECTION 16: Other information
HMIS® Hazard Ratings: Health - 2*, Flammability - 3, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information: New SDS

Key literature references and sources for data: No data available.

Training information: No data available.

Issue Date: 05/16/2015

SDS No.: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

Disclaimer:
1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Glycol Ether PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Propylene Glycol Ethyl Ether, PE</td>
</tr>
<tr>
<td>Substance name</td>
<td>1-ethoxy-2-propanol</td>
</tr>
<tr>
<td>Substance No.</td>
<td>216-374-5 (EINECS)</td>
</tr>
</tbody>
</table>

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Manufacture of substances; Distribution of substance; Formulation & (re)packing of substance and mixtures; Uses in Coatings; Use as intermediate

1.3 Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Company</th>
<th>Registration number</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyondell Chemie Nederland, B.V.</td>
<td>01-2119462792-32</td>
<td>31 (0) 10 275 55 00</td>
</tr>
<tr>
<td>Delftseplein 27E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3013 AA Rotterdam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E-mail address: product.safety@lyb.com

Responsible/issuing person

1.4 Emergency telephone

Lyondell Chemie Nederland, B.V. +32 3 575 1235

Poison Center:
National Poisons Information Service
UK: +44 131 242 1383
24 hours all days

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Category 3: H226</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye irritation</td>
<td>Category 2: H319</td>
</tr>
<tr>
<td>Specific target organ systemic toxicity - repeated exposure</td>
<td>Category 3: H336</td>
</tr>
</tbody>
</table>
2.2 Label elements

Labeling (REGULATION (EC) No 1272/2008)

Signal Word : Warning

Hazard pictograms :

Hazard Statements :
- H226 Flammable liquid and vapor.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.

Precautionary Statements :

Prevention:
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P243 Take precautionary measures against static discharge.
- P264 Wash hands thoroughly after handling.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).
3. Composition/information on ingredients

3.1 Substances

Chemical nature: Substance

Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EINECS-No. / ELINCS No./EC-No.</th>
<th>Weight %</th>
<th>Component Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Ethoxypropan-2-ol</td>
<td>1569-02-4</td>
<td>216-374-5</td>
<td>&gt;= 96.0 %</td>
<td>A</td>
</tr>
<tr>
<td>2-Ethoxy-1-propanol</td>
<td>19089-47-5</td>
<td>242-806-7</td>
<td>&lt;=3.0 %</td>
<td>A</td>
</tr>
</tbody>
</table>

Key:
(A) Substance

4. First aid measures

4.1 Description of first-aid measures

General advice: Vapors may cause drowsiness and dizziness. Consult a physician/doctor if necessary. Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Show this material safety data sheet to the doctor in attendance.

If inhaled: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

In case of skin contact: Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. Seek medical attention if discomfort persists.

In case of eye contact: Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

If swallowed: If large quantity swallowed, give lukewarm water (pint/1/2 liter) if victim completely conscious/alert. Do not induce vomiting. Risk of damage to lungs exceeds
4.2 Most important symptoms and effects, both acute and delayed

Symptoms: High vapor concentrations may cause central nervous system (CNS) depression with symptoms such as nausea, dizziness, weakness, headache, loss of coordination, loss of consciousness, coma and death.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: No detoxification information available. Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: SMALL FIRE: Use dry chemical, CO2, water spray or regular foam
LARGE FIRES: Use water spray or fog

Unsuitable extinguishing media: Do not use solid water stream.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting: May travel long distances along the ground before igniting and flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below normal flash point. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if it can be done without risk. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

5.3 Advice for firefighters
Special protective equipment for fire-fighters: Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighter’s protective clothing will only provide limited protection.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation. Eliminate all sources of ignition. Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions: Chemical removal by air and water pollution control devices must meet the minimum efficiency requirements needed to reduce exposures to an acceptable level. If necessary, all contaminated waste water must be treated in a municipal or industrial wastewater treatment plant before release to surface water.

6.3 Methods and materials for containment and cleaning up

Methods for containment / Methods for cleaning up: Eliminate all sources of ignition. Release causes immediate fire/explosion hazard. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling: For industrial use only. Keep container tightly closed when not in use.
The potential for peroxide formation is enhanced when this solvent is used in processes such as distillation. Use only non-sparking tools. Properly ground containers before beginning transfer. When transferring propylene glycol ethers with flash points at or below 60 °C (140 °F) into fixed site vessels, the vessel should be purged and inerted prior to transfer. Propylene glycol ethers may be transferred into air atmospheres if the temperature of the product and the ambient temperature within the shipping container are both at least 16.7 °C (30 °F) less than the product's flash point. After loading, nitrogen blanketing is required if the contents of the transportation container could exceed a temperature of 16.7 °C (30 °F) less than the product flash point during any subsequent transportation activities. If the product flash point is less than 16.7 °C (30 °F) above either the ambient temperature of the transportation container or the storage temperature of the product, the container should be purged and inerted with nitrogen prior to loading and nitrogen blanketed after loading. Handle empty containers with care. Flammable/combustible residue remains after emptying. The purging of all empty shipping containers, regardless of the flashpoint, is recommended when received with air atmospheres. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Use adequate personal protective equipment. Observe precautions pertaining to confined space entry.

Fire-fighting class: Flammable liquid

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Storage under nitrogen atmosphere is recommended to minimize possible formation of highly reactive peroxides. Some plastics/rubbers are attacked by Glycol Ethers/Ether Esters. This product will absorb water if exposed to air. Store in properly lined steel/stainless steel to avoid slight discoloration from mild steel/copper. Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Soft steel; avoid most plastics.

7.3 Specific end use(s): (Refer to exposure scenario section for specific information).
8. Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Consult local authorities for acceptable exposure limits.

| DN(M)EL     | End Use: Workers Routes of exposure: Inhalation Potential health effects: Acute effects Value: 317 mg/m3 Systemic effects |
| DN(M)EL     | End Use: Consumers Routes of exposure: Inhalation Potential health effects: Acute effects Value: 190 mg/m3 Systemic effects |
| PNEC        | Water Value: 10 mg/l |
| PNEC        | Fresh water sediment Value: 37.6 mg/kg |
| PNEC        | Soil Value: 2.4 mg/kg |
| PNEC        | Sewage Treatment Plant Value: 1250 mg/l |

8.2 Exposure controls

Engineering measures

Use explosion-proof local exhaust ventilation not only to control exposure but also to prevent formation of flammable mixtures.

Personal protective equipment

Respiratory protection

If exposure can potentially exceed the exposure limit(s), respiratory protection recommended or approved by appropriate local, state or international agency must be used.

Hand protection

Wear chemical resistant gloves such as: Neoprene.
**Eye and face protection:** Eye protection, including both chemical splash goggles and face shield, must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor.

**Skin and body protection:** Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn. The equipment must be cleaned thoroughly after each use.

**Hygiene measures:** Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Take off contaminated clothing and wash before reuse.

**Environmental exposure controls**

**General advice:** See section 6.

**Soil:** The product should not be allowed to enter drains, water courses or the soil.

**Water:** If the product contaminates rivers and lakes or drains inform respective authorities.

## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>liquid</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Colorless.</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Mild odor.</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>~ 35 °C (SETA)</td>
</tr>
<tr>
<td><strong>Lower explosion limit</strong></td>
<td>~ 1.3 vol%</td>
</tr>
<tr>
<td><strong>Upper explosion limit</strong></td>
<td>~ 12 vol%</td>
</tr>
</tbody>
</table>
Flammability (solid, gas): Not applicable
Oxidizing properties: Not considered an oxidizing agent.
Autoignition temperature: ~ 255 °C
Decomposition temperature: not determined
Melting point/range: ~ -90 °C
Boiling point/boiling range: ~ 132 °C
Vapor pressure: ~ 5.86 hPa
Density: 0.890 - 0.907 g/cm³
Water solubility: Complete (In All Proportions).
Partition coefficient: n-octanol/water: log Pow: < 1
Viscosity, dynamic: 2.21 mPa.s
Relative vapor density: No Data Available.
Surface tension: 41.5 mN/m
Explosive properties: Not explosive

9.2 Other information
Other information: Hygroscopic.

10. Stability and reactivity
10.1 Reactivity
May react with oxygen to form peroxides.
10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
Hazardous reactions: Not expected to occur.

10.4 Conditions to avoid

Conditions to avoid: Extended contact with air or oxygen. The potential for peroxide formation is enhanced when this solvent is used in processes such as distillation. Heat, sparks, open flame, other ignition sources, and oxidizing conditions. Ignition may occur at temperatures below those published in the literature as autoignition or ignition temperatures.

10.5 Incompatible materials

Materials to avoid: May react with oxygen to form peroxides. However, there is no known evidence that it has nearly the peroxide forming potential as, for example, diethyl ether, etc. Air or oxygen. Phosphorus compounds Severe oxidizing conditions.

10.6 Hazardous decomposition products

Thermal decomposition: Note: Thermal decomposition may produce carbon monoxide and other toxic vapors.

11. Toxicological information

11.1 Information on toxicological effects

Product Summary: The below given information is based on the assessment of the product including impurities.

Acute toxicity

Acute oral toxicity: Based on acute toxicity values, not classified.

LD50: > 5,000 mg/kg
Species: Rat

Acute inhalation toxicity: Based on acute toxicity values, not classified.

LC50: > 10,000 mg/l
Exposure time: 4 HOURS
Species: Rat

Acute dermal toxicity: Based on acute toxicity values, not classified.
LD50: > 5,000 mg/kg  
Species: Rabbit

High doses may cause CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).

**Skin corrosion/irritation**
- Based on skin irritation values, not classified.
- May be irritating to the skin.

**Serious eye damage/eye irritation**
- Classified
- Causes serious eye irritation.

**Respiratory or skin sensitization**
- Respiratory sensitization: Not classified  
  No study available.
- Skin sensitization: Not classified  
  No adverse effect observed.

**Chronic toxicity**

**Carcinogenicity**
- Not classified
  No adverse effect observed.

**Germ cell mutagenicity**
- Not classified
  No adverse effect observed.

**Reproductive toxicity**

**Effects on fertility / Effects on or via lactation**
- Not classified
  No adverse effect observed.

**Effects on Development**
- Not classified
  No adverse effect observed.

**Target Organ Systemic Toxicant - Single exposure**
- Classified, May cause drowsiness or dizziness.
- Routes of exposure: Inhalation
Target Organs: Central nervous system

: High doses may cause CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).

Target Organ Systemic Toxicant - Repeated exposure

: Based on repeated exposure toxicity values, not classified.

Aspiration hazard

: Based on physico-chemical values or lack of human evidence, not classified.

12. Ecological information

12.1 Toxicity

Toxicity to fish

: Low acute toxicity to fish

Toxicity to daphnia and other aquatic invertebrates

: Low acute toxicity to aquatic invertebrates.

Toxicity to algae

: Low toxicity to algae.

Toxicity to bacteria

: Low toxicity to sewage microbes.

Toxicity to fish (Chronic toxicity)

: no data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

: no data available

Ecotoxicology Assessment

Acute aquatic toxicity

: Based on acute aquatic toxicity values, not classified.

Chronic aquatic toxicity

: Not classified, based on readily biodegradability and low acute toxicity.

12.2 Persistence and degradability

Biodegradability

: 87.7 %

Readily biodegradable
12.3 Bioaccumulative potential

**Bioaccumulation** : Bioconcentration factor (BCF): 3.16
This material is not expected to bioaccumulate.

12.4 Mobility in soil

**Surface tension** : 41.5 mN/m

**Distribution among environmental compartments**

- Stability in water: no data available
- Stability in soil: no data available

**Additional advice**

**Environmental fate and pathways** : No additional information available.

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

**Additional ecological information** : No additional information available.

13. Disposal considerations

13.1 Waste treatment methods

**Product**

Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Comply with applicable local, state or international regulations concerning solid or hazardous waste disposal and/or container disposal.

14. Transport information

**ADR**

- **UN number** : 3271
- **UN proper shipping name** : Ethers, n.o.s.
  (Propylene Glycol Ethyl Ether)
Transport hazard class(es) : 3
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3
Tunnel restriction code : D/E
Environmentally hazardous : no

ADN

UN number : 3271
UN proper shipping name : Ethers, n.o.s.
(Propylene Glycol Ethyl Ether)
Transport hazard class(es) : 3
Packing group : III
Classification Code : F1
Labels : 3
Tunnel restriction code :
Environmentally hazardous : no

IMDG

UN number : 3271
Description of the goods : Ethers, n.o.s.
(Propylene Glycol Ethyl Ether)
Class : 3
Packing group : III
Labels : 3
EmS Number 1 : F-E
EmS Number 2 : S-D

Marine pollutant : no

RID

UN number : 3271
Description of the goods : Ethers, n.o.s.
(Propylene Glycol Ethyl Ether)
Transport hazard class(es) : 3
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3
Environmentally hazardous : no

IATA

: Not Supported
: If transportation information is required, please contact Logistics Compliance at:
dangerousgoods@lyondellbasell.com
15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Water contaminating class: WGK 1 slightly water endangering (Germany)

REACH status

If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been pre-registered or, where required under REACH, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACH. (Regulation (EU) No. 1907/2006)

Other international regulations

Global Inventory Status
The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

*Additional Explanatory Status Statements follow the table, as necessary.

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Inventory</th>
<th>Status Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>AICS</td>
<td>Compliant</td>
</tr>
<tr>
<td>Canada</td>
<td>DSL</td>
<td>Compliant</td>
</tr>
<tr>
<td>China</td>
<td>IECSC</td>
<td>Compliant</td>
</tr>
<tr>
<td>Europe</td>
<td>REACH</td>
<td>See REACH Compliance Statement</td>
</tr>
<tr>
<td>Japan</td>
<td>ENCS</td>
<td>Compliant</td>
</tr>
<tr>
<td>Korea</td>
<td>KECI</td>
<td>Compliant</td>
</tr>
<tr>
<td>New Zealand</td>
<td>NZIoC</td>
<td>Compliant</td>
</tr>
<tr>
<td>Philippines</td>
<td>PICCS</td>
<td>Compliant</td>
</tr>
<tr>
<td>United States of America</td>
<td>TSCA</td>
<td>Not Compliant</td>
</tr>
<tr>
<td>Taiwan</td>
<td>TCSCA</td>
<td>Compliant</td>
</tr>
</tbody>
</table>

Contact product.safety@lyb.com for additional global inventory information.

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

16. Other information

Material safety datasheet sections which have been updated:
Revised Section(s): 15 Revision Date February 22 2016
Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Disclaimer

Multiple legal entities and registration numbers may be displayed in Section 1. The Recipient shall refer to the shipping documents to identify the legal entity that supplied this product.

This document is generated for the purpose of distributing health, safety, and environmental data. Information is correct to the best of our knowledge at the date of the SDS publication. It is not a specification sheet nor should any displayed data be construed as a specification. Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

SELLER MAKES NO WARRANTY; EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY WARRANTY) OTHER THAN AS SEPARATELY AGREED TO BY THE PARTIES IN A CONTRACT.

Users should review the applicable Safety Data Sheet before handling the product. This product(s) may not be used in the manufacture of any of the following, without prior written approval by Seller for each specific product and application:

(i) U.S. FDA Class I or II Medical Devices; Health Canada Class I, II or III Medical Devices; European Union Class I or II Medical Devices;
(ii) film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices;
(iii) packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration;
(iv) tobacco related products and applications, electronic cigarettes and similar devices.

The product(s) may not be used in:

(i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices;
(ii) applications involving permanent implantation into the body;
(iii) life-sustaining medical applications.

All references to U.S. FDA, Health Canada, and European Union regulations include another country’s equivalent regulatory classification.

In addition to the above, LyondellBasell may further prohibit or restrict the use of its products in certain applications. For further information, please contact a LyondellBasell representative.

Alkylate, Duopac, Duoprime, Filmex, MPDIOL, Polymeg, SAA-100, SAA-101, TBAc, Tebol, T-Hydro, and Tufflo are trademarks owned or used by the LyondellBasell family of companies. The presentation of numerical data, such as that used for physical and chemical properties and toxicological values, is expressed using a comma (,) to separate digits into groups of three and
SAFETY DATA SHEET

1. Identification

Product identifier Dup Fluid 105C
Other means of identification
Product code 0300228
Recommended use Printing
Solvent
Recommended restrictions None known.
Manufacturer Superior Oil Company, Inc.
1402 North Capitol Avenue, Suite #100
Indianapolis, IN 46202
US
Information (317) 781-4400
Emergency (317) 781-4400

2. Hazard(s) identification

Physical hazards Flammable liquids Category 2
Health hazards Not classified.
Environmental hazards Hazardous to the aquatic environment, acute hazard Category 2
Hazardous to the aquatic environment, long-term hazard Category 2
OSHA defined hazards Not classified.
Label elements

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
<td>Highly flammable liquid and vapor.</td>
</tr>
<tr>
<td>H225</td>
<td>May cause skin and eyes irritation.</td>
</tr>
<tr>
<td>H303</td>
<td>May cause respiratory tract irritation.</td>
</tr>
<tr>
<td>H333</td>
<td>Toxic to aquatic life.</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

Prevention
P262 - Avoid eyes contact.
P262 - Avoid prolonged skin contact.
P260 - Avoid breathing vapors or mist.
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/eye protection/face protection.
P264 - Wash hands thoroughly after handling.

Response
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 - Immediately call a poison center/doctor.
P370 + P378 - In case of fire: Use appropriate media to extinguish.
P391 - Collect spillage.

Storage
P403 + P235 - Store in a well-ventilated place. Keep cool.

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national regulations.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td></td>
<td>64-17-5</td>
<td>90-100</td>
</tr>
<tr>
<td>Isopropanol</td>
<td></td>
<td>67-63-0</td>
<td>0.1-10</td>
</tr>
<tr>
<td>n-Propyl Acetate</td>
<td></td>
<td>109-60-4</td>
<td>0.1-10</td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhalation
If overexposure to vapors or mist, move to fresh air. Call a physician if breathing becomes difficult.

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. Get medical attention if symptoms occur.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

General information
Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media
Alcohol resistant foam. Water fog. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid release to the environment. Do not empty into drains.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid spark promoters. Eliminate sources of ignition. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (CAS 64-17-5)</td>
<td>PEL</td>
<td>1900 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>PEL</td>
<td>980 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400 ppm</td>
</tr>
<tr>
<td>n-Propyl Acetate (CAS 109-60-4)</td>
<td>PEL</td>
<td>840 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (CAS 64-17-5)</td>
<td>STEL</td>
<td>1000 ppm</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>STEL</td>
<td>400 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>200 ppm</td>
</tr>
<tr>
<td>n-Propyl Acetate (CAS 109-60-4)</td>
<td>STEL</td>
<td>250 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

Material name: Dup Fluid 105C

201 Version #: 01 Revision date: 11-17-2014 Issue date: 06-30-2014
US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (CAS 64-17-5)</td>
<td>TWA</td>
<td>1900 mg/m³</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>STEL</td>
<td>1225 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>980 mg/m³</td>
</tr>
<tr>
<td>n-Propyl Acetate (CAS 109-60-4)</td>
<td>STEL</td>
<td>1050 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>840 mg/m³</td>
</tr>
</tbody>
</table>

Biological limit values

<table>
<thead>
<tr>
<th>ACGIH Biological Exposure Indices</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>40 mg/l</td>
<td>Acetone</td>
<td>Urine</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Hand protection
Wear protective gloves.

Skin protection
Wear appropriate chemical resistant clothing.

Respiratory protection
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

General hygiene considerations
When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance
Clear.

Physical state
Liquid.

Form
Liquid.

Color
Colorless.

Odor
Alcohol.

pH
Not available.

Melting point/freezing point
N.D.

Initial boiling point and boiling range
173.3 °F (78.5 °C) estimated

Flash point
50.0 °F (10.0 °C) (Lowest flashing component)

Evaporation rate
> 1 (Butyl Acetate = 1)

Upper/lower flammability or explosive limits

Flammability limit - lower (%)
2 % estimated

Flammability limit - upper (%)
19 % estimated

Vapor pressure
58.31 hPa (1 hPa = 0.75006 mmHg)

Vapor pressure temp.
20 deg. C
Vapor density > 1 (Air = 1)
Solubility(ies)
Solubility (water) Moderate
Auto-ignition temperature N.D.
Other information
Percent volatile 100 %
Pounds per gallon 6.65 lb/gal
Specific gravity 0.798
VOC (Weight %) 100 %

10. Stability and reactivity
Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability Stable under normal conditions.
Possibility of hazardous reactions No hazardous reaction known under normal conditions of use.
Conditions to avoid Avoid heat, sparks, open flames and other ignition sources. Suitable precautions should be utilized if using this product at temperatures above the flash point. Contact with incompatible materials.
Incompatible materials Strong oxidizers and strong acids.
Hazardous decomposition products No hazardous decomposition products are known if stored and applied as directed.

11. Toxicological information
Information on likely routes of exposure
Ingestion Expected to be a low ingestion hazard.
Inhalation Prolonged inhalation may be harmful.
Skin contact No adverse effects due to skin contact are expected.
Eye contact Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics Direct contact with eyes may cause temporary irritation.
Information on toxicological effects
Acute toxicity Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (CAS 64-17-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Mouse</td>
<td>39 mg/l, 4 Hours</td>
</tr>
<tr>
<td>Rat</td>
<td></td>
<td>20000 ppm, 10 Hours</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Dog</td>
<td>5.5 g/kg</td>
</tr>
<tr>
<td>Guinea pig</td>
<td></td>
<td>5.6 g/kg</td>
</tr>
<tr>
<td>Mouse</td>
<td></td>
<td>3450 mg/kg</td>
</tr>
<tr>
<td>Rat</td>
<td></td>
<td>6.2 g/kg</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Mouse</td>
<td>933 mg/kg</td>
</tr>
<tr>
<td>Rat</td>
<td></td>
<td>1440 mg/kg</td>
</tr>
</tbody>
</table>
### Components Test Results

#### Isopropanol (CAS 67-63-0)

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>Acute 12800 mg/kg</td>
</tr>
<tr>
<td>Dog</td>
<td>Oral 4797 mg/kg</td>
</tr>
<tr>
<td>Mouse</td>
<td>Acute 3600 mg/kg</td>
</tr>
<tr>
<td>Rabbit</td>
<td>Other 5.03 g/kg</td>
</tr>
<tr>
<td>Rat</td>
<td>Other 4.7 g/kg</td>
</tr>
</tbody>
</table>

#### n-Propyl Acetate (CAS 109-60-4)

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>Acute 8300 mg/kg</td>
</tr>
<tr>
<td>Rabbit</td>
<td>Other 6.64 g/kg</td>
</tr>
<tr>
<td>Rat</td>
<td>Other 9370 mg/kg</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

### Skin corrosion/irritation
- Prolonged skin contact may cause temporary irritation.

### Serious eye damage/eye irritation
- Direct contact with eyes may cause temporary irritation.

### Respiratory or skin sensitization
- Respiratory sensitization: Not available.
- Skin sensitization: This product is not expected to cause skin sensitization.

### Germ cell mutagenicity
- No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

### Carcinogenicity
- This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
- Not listed.

### Reproductive toxicity
- This product is not expected to cause reproductive or developmental effects.

### Specific target organ toxicity
- Single exposure: Not classified.
- Repeated exposure: Not classified.

### Aspiration hazard
- Not available.

### Chronic effects
- Prolonged inhalation may be harmful.

#### 12. Ecological information

### Ecotoxicity
- Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (CAS 64-17-5)</td>
<td>Aquatic</td>
<td>Crustacea EC50 Water flea (Daphnia magna)</td>
</tr>
<tr>
<td>Isopropanol (CAS 67-63-0)</td>
<td>Aquatic</td>
<td>Fish LC50 Fathead minnow (Pimephales promelas)</td>
</tr>
<tr>
<td></td>
<td>Fish LC50 Bluegill (Lepomis macrochirus)</td>
<td>&gt; 1400 mg/l, 96 hours</td>
</tr>
</tbody>
</table>
Components Test Results

Species

| Fish | LC50 | Fathead minnow (Pimephales promelas) 56 - 64 mg/l, 96 hours |

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

| Isopropanol | 0.05 |
| n-Propyl Acetate | 1.23 |

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT BULK / NON-BULK:

| UN number | 1170 |
| Proper shipping name | Ethanol Solution |
| Hazard class | 3 |
| Packing group | II |
| ERG code | 127 |

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

CERCLA Hazardous Substance List (40 CFR 302.4)

| Substance | Listed |
| Ethanol (CAS 64-17-5) | Listed |
| n-Propyl Acetate (CAS 109-60-4) | Listed |

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

| Hazard categories | Immediate Hazard - Yes |
| Delayed Hazard - No |
| Fire Hazard - Yes |
| Pressure Hazard - No |
| Reactivity Hazard - No |

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting) Hazardous chemical

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
Ethanol (CAS 64-17-5)
Isopropanol (CAS 67-63-0)
n-Propyl Acetate (CAS 109-60-4)

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania RTK - Hazardous Substances
Ethanol (CAS 64-17-5)
Isopropanol (CAS 67-63-0)
n-Propyl Acetate (CAS 109-60-4)

US. Rhode Island RTK
Isopropanol (CAS 67-63-0)

US. California Proposition 65
WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance
Ethanol (CAS 64-17-5) Listed: April 29, 2011
Isopropanol (CAS 67-63-0) Listed: July 1, 1988

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 11-17-2014
Version # 01
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Revision information This document has undergone significant changes and should be reviewed in its entirety.