SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Bykanol-N
Product Use Description : Rheology Additive

Company : BYK USA Inc.
524 South Cherry Street
Wallingford CT 06492

Prepared by : J.Nole, Safety; M.McCutcheon, Regulatory
Telephone : (203) 265-2086
Visit our web site : www.byk.com
E-mail address : ehs.byk.usa@altana.com
Emergency telephone number : CHEMTREC 1-800-424-9300 / +1 703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form : liquid
Colour : light yellow
Odour : aromatic

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR1910.1200)

Potential Health Effects

Eyes : Contact may cause irritation.

Skin : Contact may cause irritation and sensitization.

Ingestion : May irritate the digestive tract and cause same symptoms as inhalation; high dosages may result in unconsciousness.

Inhalation : High concentrations of vapors may be irritating to the respiratory tract. May cause headaches, dizziness, nausea and vomiting. May cause CNS depression (drowsiness, loss of coordination and fatigue).

Chronic Exposure : Absorption of ingredients (solvents) by inhalation and/or repeated skin contact has caused injury to liver, kidney, brain, respiratory system, blood, and/or bone marrow in laboratory animals
Animal studies have shown Xylene to cause fetotoxic effects at dosage levels at or near maternal toxicity levels.
Excessive inhalation of Xylene has caused hearing loss in laboratory animals. Hexane used in conjunction w/Xylene greatly increased this effect. Chronic skin contact w/Xylene
has caused dermatitis. Ingestion of Ethanol can increase effects of overexposure to Xylene. Isobutanol has shown positive results in an in vitro test for potential mutagenicity. Preliminary studies have shown 2-Butanone oxime has caused liver cancer, respiratory tract damage, anemia, and cataracts in laboratory animals. Ethylbenzene is an IARC Group 2B carcinogen based on animal studies (increased tumors in rats and mice).

Aggravated Medical Condition: May be aggravating to some skin conditions, asthma-type conditions, pre-existing liver and/or kidney disorders.

Primary Routes of Entry: Skin contact, Skin absorption, Inhalation, Eyes, Ingestion.

Carcinogenicity:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Substance</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
</tr>
</tbody>
</table>

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Substance</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
</tr>
</tbody>
</table>

Environmental Effects:

Environmental Effects: No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature:

Solution of an alkylammonium salt of acidic phosphoric acid esters and a ketoxime.

Hazardous components:

Ethylbenzene is a component of Xylene.
### SECTION 4. FIRST AID MEASURES

**First aid procedures**

**Inhalation**
- Remove to fresh air. Administer artificial respiration if necessary. Get medical aid as soon as possible.

**Skin contact**
- Remove contaminated clothing. Wash thoroughly with soap and water.

**Eye contact**
- Immediately flush with plenty of water for at least 20 minutes. Get medical aid.

**Ingestion**
- Do not induce vomiting; aspiration hazard. Dilute with 1-2 glasses of water. Get medical aid. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs.

**Notes to physician**

- **Risks**: No information available.

### SECTION 5. FIREFIGHTING MEASURES

**Flammable properties**

**Flash point**
- 24 °C (75.20 °F)
  - Method: 48 (Abel-Pensky)

**Ignition temperature**
- 315 °C (599.00 °F)
  - Method: calculated

**Lower explosion limit**
- 1.20 % (V)

**Upper explosion limit**
- 10.70 % (V)

**Suitable extinguishing media**
- Foam
- Carbon dioxide (CO2)
- Dry chemical
Unsuitable extinguishing media: No information available.
Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.
Specific hazards during firefighting: Cool closed containers exposed to fire with water spray. Will not explode on mechanical impact.

Hazardous decomposition products due to incomplete combustion: Carbon oxides, nitrogen oxides (NOx), Oxides of phosphorus

Further information: Keep away from heat and sources of ignition. Keep away from oxidizing agents.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Eliminate all sources of ignition. Ventilate area if indoors. Wear self-contained breathing apparatus and full protective clothing.

Environmental precautions: Prevent spilled material from entering the ground, water and/or air by using appropriate containment methods.

Methods for containment: Stop leak. Dike and contain spill.

Methods for cleaning up: Pump into salvage tanks and/or absorb with suitable material. Use sparkless shovels to remove material.

Additional advice: No further information is available.

SECTION 7. HANDLING AND STORAGE

Handling
Handling: Harmful in contact with skin. Avoid contact with skin and eyes. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Handle as an industrial chemical. Keep container tightly closed. Keep away from oxidizing agents.

Storage
Advice on common storage: Keep product and empty container away from heat and sources of ignition. Take precautionary measures against static discharges. Keep away from strong acids. Keep away from strong bases. Keep in a dry, cool and well-ventilated place.
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutanol</td>
<td>78-83-1</td>
<td>TWA</td>
<td>50 ppm</td>
<td>2007-01-01</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>1997-08-04</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm</td>
<td>2005-09-01</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>TWA</td>
<td>100 ppm</td>
<td>2007-01-01</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td>2007-01-01</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>1997-08-04</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>1989-01-19</td>
<td>OSHA P0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td>1989-01-19</td>
<td>OSHA P0</td>
</tr>
<tr>
<td>2-Butanone oxime</td>
<td>96-29-7</td>
<td>TWA</td>
<td>10 ppm</td>
<td>2008-01-01</td>
<td>US WEEL</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>TWA</td>
<td>100 ppm</td>
<td>2009-01-01</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>20 ppm</td>
<td>2012-01-01</td>
<td>ACGIH</td>
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<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>1997-08-04</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>1989-01-19</td>
<td>OSHA P0</td>
</tr>
</tbody>
</table>
Engineering measures

Engineering measures : Use with local exhaust ventilation.

Personal protective equipment

Eye protection : Safety Glasses
                Goggles

Hand protection : Nitrile rubber

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Unless air monitoring demonstrates vapor/mist/dust levels are below the PEL/TLV wear a properly fitted respirator (NIOSH approved) or dust mask during exposure.

Hygiene measures : Clean long legged, long sleeved work clothes. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid
Colour : light yellow
Odour : aromatic
Odor Threshold : no data available
Flash point : 24 °C (75.20 °F)
              Method: 48 (Abel-Pensky)
Ignition temperature : 315 °C (599.00 °F)
                      Method: calculated
Lower explosion limit : 1.20 % (V)
Upper explosion limit : 10.70 % (V)

pH : no data available
Freezing point : no data available
Initial boiling point : 100 °C (212.00 °F)
### SECTION 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Conditions to avoid</th>
<th>None known.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials to avoid</td>
<td>Acids</td>
</tr>
<tr>
<td></td>
<td>Strong oxidizing agents</td>
</tr>
<tr>
<td></td>
<td>Alkalis</td>
</tr>
<tr>
<td></td>
<td>Metals</td>
</tr>
<tr>
<td></td>
<td>Gives off hydrogen by reaction with metals.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>None expected</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable; polymerization will not occur</td>
</tr>
</tbody>
</table>

### SECTION 11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Acute oral toxicity (Product)</th>
<th>LD50 rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose</td>
<td>4,300.000000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td>Acute oral toxicity (Component)</td>
<td>Component: 78-83-1 Isobutanol</td>
</tr>
<tr>
<td></td>
<td>LD50 rat</td>
</tr>
<tr>
<td>Dose</td>
<td>2,500 mg/kg</td>
</tr>
<tr>
<td>Component</td>
<td>1330-20-7 Xylene</td>
</tr>
</tbody>
</table>

Vapour pressure: 16.0000000 hPa
- at 20 °C (68.00 °F)
- Method: calculated

Evaporation rate: no data available

Density: 0.8650 g/cm³
- at 20 °C (68.00 °F)
- Method: DIN EN ISO 2811-3

Bulk density: not applicable

Water solubility: immiscible

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

Viscosity, kinematic: no data available
- 1 mm²/s
- at 40 °C (104.00 °F)

Relative vapour density: no data available
## Acute dermal toxicity (Component)

- **Component:** 78-83-1 Isobutanol
  - LD50 rabbit
  - Dose: 2,460 mg/kg

- **Component:** 1330-20-7 Xylene
  - LD50 rabbit
  - Dose: 1,700 mg/kg

- **Component:** 96-29-7 2-Butanone oxime
  - LD50 rabbit
  - Dose: 920 mg/kg

- **Component:** 100-41-4 Ethylbenzene
  - LD50 rabbit
  - Dose: 5,510 mg/kg

## Acute inhalation toxicity (Component)

- **Component:** 78-83-1 Isobutanol
  - LC50 rat
  - Dose: > 8000 ppm
  - Exposure time: 4 h

- **Component:** 1330-20-7 Xylene
  - LC50 rat
  - Dose: 5000 ppm
  - Exposure time: 4 h

- **Component:** 96-29-7 2-Butanone oxime
  - LC50 rat
  - Dose: 1350 ppm

- **Component:** 100-41-4 Ethylbenzene
  - LC50
  - no data available

## Skin irritation (Product)

- **Class:** rabbit
  - **Classification:** No skin irritation
  - **Result:** No skin irritation
Skin irritation (Component) : Component: 78-83-1 Isobutanol rabbit
Result: Moderate skin irritation
Component: 1330-20-7 Xylene rabbit
Result: Moderate skin irritation
Component: 96-29-7 2-Butanone oxime rabbit
Result: Moderate skin irritation
Component: 100-41-4 Ethylbenzene rabbit
Result: Moderate skin irritation

Eye irritation (Product) : rabbit
Classification: No eye irritation
Result: No eye irritation
Method: OECD Test Guideline 405

Eye irritation (Component) : Component: 78-83-1 Isobutanol rabbit
Result: Eye irritation
Component: 1330-20-7 Xylene rabbit
Result: Eye irritation
Component: 96-29-7 2-Butanone oxime rabbit
Result: Corrosive to eyes
Component: 100-41-4 Ethylbenzene rabbit
Result: Moderate eye irritation

SECTION 12. ECOLOGICAL INFORMATION

Additional ecological information (Product) : There is no data available for this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Further information : Dispose of in accordance with applicable local/municipal, state/provincial and federal regulations.
## SECTION 14. TRANSPORT INFORMATION

Container sizes: 55 gallon drums, 5 or 6-gallon pails, 2oz/16oz samples)

**DOT**
- UN Number : 1993
- Proper shipping name : FLAMMABLE LIQUID, N.O.S. (Isobutanol, Xylene)
- Class : 3
- Packing group : III
- Emergency Response Guidebook Number : 128

**IATA**
- UN Number : 1993
- Description of the goods : FLAMMABLE LIQUID, N.O.S. (Isobutanol, Xylene)
- Class : 3
- Packing group : III
- ICAO-Labels : 3
- Packing instruction (cargo aircraft) : 366
- Packing instruction (passenger aircraft) : 355
- Package Instruction (Limited quantity) : Y344

**IMDG**
- UN Number : UN 1993
- Description of the goods : FLAMMABLE LIQUID, N.O.S. (Isobutanol, Xylene)
- IMDG Code segregation group - none
- Class : 3
- Packing group : III
- IMDG-Labels : 3
- EmSNNumber1 : F-E
- EmSNNumber2 : S-E
- Marine pollutant : no
- IMDG Code segregation group : none

## SECTION 15. REGULATORY INFORMATION

**HMIS Classification**
- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 3
- Reactivity: 0
- PPI:B

**National Fire Protection** : IC
Material Safety Data Sheet

Bykanol-N

Version 4  Revision Date 08/05/2013  Print Date 09/13/2013

Association (NFPA) Class

Emergency Planning Community Right-To-Know (EPCRA)

SARA 302 Components: Not applicable

If listed below, this product contains toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

SARA 313 Components:
- Xylene 1330-20-7 23.2%
- Ethylbenzene 100-41-4 5.8%

SARA 311/312 Hazards:
- Acute Health Hazard
- Chronic Health Hazard
- Fire Hazard

Toxic Substances Control Act (TSCA)

TSCA Status: We certify that all of the components of this product are either listed on the TSCA Inventory or are not subject to the notification requirements per 40 CFR 720 30(h).

Section 4 / 12(b): Not applicable

Clean Air Act & Related Information

Non-volatile (Wt):
- 7.5 - 9.5 %
  Method: 22 (10min/150°C)
  DIN EN ISO 3251

Ozone Depleting Substances: Not applicable.

Non-volatile information is not a specification.

Hazardous Air Pollutants

- Xylene 1330-20-7
- Ethylbenzene 100-41-4

If not listed above, this product does not contain HAPs at 1% or 0.1% or greater. Refer to Section 3 for HAP weight percentage.

Resource Conservation and Recovery Act

EPA Hazardous Waste Code(s):
- D001 Ignitable
- D018 Benzene
State Laws

Massachusetts Right To Know Components:  
- Isobutanol 78-83-1  
- Xylene 1330-20-7  
- Ethylbenzene 100-41-4

Pennsylvania Right To Know Components:  
- Isobutanol 78-83-1  
- Xylene 1330-20-7  
- 2-Butanone oxime 96-29-7  
- Ethylbenzene 100-41-4  
- Water 7732-18-5

New Jersey Right To Know Components:  
- Isobutanol 78-83-1  
- Xylene 1330-20-7  
- 2-Butanone oxime 96-29-7  
- Ethylbenzene 100-41-4

New Jersey Trade Secret Registry Number for the product (NJ TSRN): 800963-5078

California Prop. 65 Components:  
- WARNING! This product contains a chemical known to the State of California to cause cancer.  
  - Ethylbenzene 100-41-4  
  - Benzene 71-43-2  
- WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.  
  - Toluene 108-88-3  
  - Benzene 71-43-2

CONEG Heavy Metal: We certify that this product does not contain Lead, Mercury, Cadmium or hexavalent chromium in the sum concentration of 100 ppm by weight or greater.

Canadian Environmental Protection Act

Domestic Substances List DSL Status:  
- We certify that all of the components of this product are listed on the DSL.

WHMIS Classification:  
- B2  
- D1B  
- D2A  
- D2B
SECTION 16. OTHER INFORMATION

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.