

# Material Safety Data Sheet

Product Name: **Red Indicating Liquid**

Product Part Number: **2992**

This product is a mixture of two or more chemicals as defined under O.S.H.A. standard 29 CFR 1910.1200. An individual MSDS for each chemical ingredient which comprises 1% or greater of the mixture (for Carcinogens concentrations of 0.1% or greater) is included with and is considered as part of the complete material safety data sheet.

## Chemical Ingredient No. 1

Common Name: .....Tetrabromoethane (TBE)  
 Chemical Name:..... 1,1,2,2-Tetrabromoethane  
 Chemical Formula: ..... C2H2Br4  
 Percent of Mixture (by volume).....95%  
 Manufacturer ..... ICL-IP Terneuzen (formerly Broomchemie B.V.)  
 Distributor..... Morre-Tec Industries, Inc.  
 MSDS..... Attached

## Chemical Ingredient No. 2

Common Name: ..... Heptyl Alcohol  
 Chemical Name:..... 1-Heptanol, 98%  
 Chemical Formula: ..... n/a  
 Percent of Mixture (by volume).....5%  
 Manufacturer ..... Acros Organics  
 Distributor..... Pfaltz & Bauer  
 MSDS..... Attached

## Chemical Ingredient No. 3

Common Name ..... Solvisol Red Dye  
 Percent of Mixture (by volume)..... Less than 1%

The information herein is provided in good faith, but no warranty, either expressed or implied, is made by King Engineering.





# MATERIAL SAFETY DATA SHEET

Product Name	Tetrabromoethane (TBE)	
Product id	2360	
Revision date	21/10/2010	Revision: 7
Supersedes	14/02/2008	

## 1. Identification of the substance & the company

Chemical name	1,1,2,2-Tetrabromoethane
Synonym(s)	Acetylene tetrabromide, Ethane, 1,1,2,2-tetrabromo-
Chemical formula	$C_2H_2Br_4$
Molecular weight	345.7
Type of product and use	For use in polymer/polyester fiber industry and for mineral separation
Supplier	ICL-IP America Inc. 95 MacCorkle Ave. SW, South Charleston, WV 25303-1411, USA Tel: (304) 720-3950 Fax: (304) 746-3101
Emergency Telephone	Chemtrec (800)424-9300

## 2. Hazards identification

Emergency overview	<i>Colourless to yellowish liquid with a sweet pungent odour. Very toxic by inhalation Irritant to eyes, skin and mucous membranes TBE is a central nervous system depressant and a hepatotoxin.</i>
Potential Health Effects:	
- Eye Contact	Irritant
- Skin contact	Irritant
- Inhalation	Irritant to upper respiratory tract. Symptoms of overexposure may include headache, abdominal cramps, vomiting, anorexia, drowsiness, yellowing of the skin, dark urine and unconsciousness in severe cases. May cause bilirubinuria, monocytosis, pulmonary edema, liver and kidney damage.
- Ingestion	Irritant to mucous membranes Symptoms as of inhalation.
Chronic effects/Carcinogenicity	Prolonged exposure may cause liver and kidney damage.



# MATERIAL SAFETY DATA SHEET

**Product Name** Tetrabromoethane (TBE)  
**Product id** 2360  
**Revision date** 21/10/2010 **Revision: 7**  
**Supersedes** 14/02/2008

**NFPA Ratings (Scale 0-4)** Health = 3, Fire = 0, Reactivity = 1.

### 3. Composition / information on ingredients

Components	CAS No.	Weight %
1,1,2,2-TETRABROMOETHANE	79-27-6	98.6

### 4. First-aid measures

**Eye contact** Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

**Skin contact** Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention immediately.

**Inhalation** In case of mist inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

**Ingestion** If swallowed, wash mouth thoroughly with plenty of water and give water to drink. Get medical attention immediately.

\*\*\*\*\*  
NOTE: Never give an unconscious person anything to drink.  
\*\*\*\*\*

**Notes to the physician** No specific antidote. Treat symptomatically and supportively. In case of ingestion DO NOT induce vomiting. Signs and symptoms of toxicity are primarily referable to the CNS, respiratory tract .



# MATERIAL SAFETY DATA SHEET

**Product Name** Tetrabromoethane (TBE)  
**Product id** 2360  
**Revision date** 21/10/2010 **Revision: 7**  
**Supersedes** 14/02/2008

## 5. Fire - fighting measures

**Suitable extinguishing media** Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions.

**Fire fighting procedure** Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode

**Unusual fire and explosion hazards** Will decompose from ca. 239°C releasing poisonous and corrosive fumes of Hydrogen bromide, bromine and carbonyl bromide.

## 6. Accidental release measures

**Personal precautions** Evacuate area.  
Full protective clothing, including self-contained breathing apparatus, must be used.

**Methods for cleaning up** Absorb on sand or vermiculite and place in closed container for disposal.  
Ventilate area and wash spill site after material pickup is complete.

## 7. Handling and storage

**Handling** Keep containers tightly closed. Avoid breathing vapours and any other bodily contact.

**Storage** Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid").

## 8. Exposure controls / personal protection

### Exposure Limits :

Components	ACGIH-TLV Data	OSHA (PEL) Data
1,1,2,2-TETRABROMOETHANE 79-27-6	0.1 ppm	1 ppm, 14 mg/m <sup>3</sup>

## MATERIAL SAFETY DATA SHEET

<b>Product Name</b>	<b>Tetrabromoethane (TBE)</b>	
<b>Product id</b>	2360	
<b>Revision date</b>	21/10/2010	<b>Revision: 7</b>
<b>Supersedes</b>	14/02/2008	

**Ventilation requirements**                      Mechanical exhaust required.  
Ventilation must be sufficient to maintain atmospheric concentration below recommended exposure limit.

**Personal protective equipment:**

- **Respiratory protection**                      Approved respirator
- **Hand protection**                              Protective gloves
- **Eye protection**                                Chemical safety goggles
- **Skin and body protection**                    Body covering clothes and boots

**Hygiene measures**                              Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.  
Safety shower and eye bath should be provided.

**9. Physical and chemical properties**

<b>Appearance</b>	Colourless to yellowish liquid with a sweet pungent odour.
<b>Boiling point/range</b>	119°C (15mmHg) & 150°C (50 mmHg)
<b>Melting point/range</b>	1 °C ±1°C
<b>Flash point</b>	None
<b>Flammable/Explosion limits</b>	Not flammable
<b>Auto-ignition temperature</b>	335°C
<b>Vapour pressure</b>	0.04 mmHg (24°C)
<b>Evaporation rate (ether=1)</b>	Not available
<b>Vapor density</b>	11.92
<b>Viscosity</b>	Not determined
<b>Solubility:</b>	
- <b>Solubility in water</b>	0.063 g/100ml at 20°C 0.28 gr/100ml at 80°C
- <b>Solubility in other solvents</b>	Soluble in most organic solvents
<b>Specific gravity</b>	2.96
<b>pH</b>	Not available
<b>Decomposition temperature</b>	239°C
<b>Explosive properties</b>	Not available
<b>Oxidising properties</b>	Not available
<b>Particle size:</b>	Not applicable
	Substance is a liquid, thus test not relevant



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<b>Product Name</b>	<b>Tetrabromoethane (TBE)</b>	
<b>Product id</b>	2360	
<b>Revision date</b>	21/10/2010	<b>Revision: 7</b>
<b>Supersedes</b>	14/02/2008	

## 10. Stability and reactivity

<b>Stability</b>	Stable under normal conditions.
<b>Materials to avoid</b>	Reacts with chemically active metals or strong caustics. In the presence of steam, contact with hot iron, aluminium and zinc may cause formation of toxic vapours. Softens or destroys most plastics and rubbers.
<b>Conditions to avoid</b>	Heating above decomposition temperature
<b>Hazardous decomposition products</b>	Hydrogen bromide, bromine and carbonyl bromide
<b>Hazardous polymerization</b>	Will not occur

## 11. Toxicological information

<b>Acute toxicity:</b>	
- Rat oral LD50	1200 mg/kg
- Rat dermal LD50	5250 mg/kg
- Rat inhalation LC50	549 mg/m <sup>3</sup> /4 hour
<b>Chronic toxicity</b>	Prolonged exposure may cause liver and kidney damage.
<b>Mutagenicity</b>	Mutagenic by the Ames Test Was found mutagenic in DNA repair test with E. coli. Was found clastogenic in sister chromatid exchange test with Chinese hamster ovary cells.
<b>Carcinogenicity</b>	Not classified by IARC Not included in NTP 11th Report on Carcinogens
<b>Reproductive toxicity</b>	No information available

## 12. Ecological information

<b>Aquatic toxicity :</b>	<b>Aquatic toxicity :</b>
- LC50, fish	19 mg/l, 48 Hours (orange red-killifish)
- BOD % of TOD	29% (2 weeks)
<b>Bioaccumulative potential</b>	BCF 0.5~7.0 (10 ug/l, 6 weeks) BCF <2.9~8.2 (1 ug/l, 6 weeks)



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<b>Product id</b>	2360	
<b>Revision date</b>	21/10/2010	<b>Revision: 7</b>
<b>Supersedes</b>	14/02/2008	

## 13. Disposal considerations

**Waste disposal** Observe all federal, state and local environmental regulations when disposing of this material.

## 14. Transportation information

<b>UN No.</b>	2504
<b>DOT</b>	Proper shipping name: TETRABROMOETHANE Packing Group: III Class: 6.1 - Poisons Marking: Marine Pollutant Label: TOXIC (6.1) Emergency Guide No.159
<b>IMO</b>	Proper shipping name: TETRABROMOETHANE Class: 6.1 Toxic substances Label: TOXIC (6.1) Marking: Marine Pollutant Packing Group: III
<b>ICAO/IATA</b>	Proper shipping name: TETRABROMOETHANE Class: 6.1 Hazard Label (s): Toxic Packing group: III

## 15. Regulatory information

<b>USA</b>	Reported in the EPA TSCA Inventory.
<b>- Massachusetts right-to-know list</b>	Listed
<b>- New Jersey right-to-know list</b>	Listed
<b>- Pennsylvania right to know list</b>	Listed
<b>- Illinois toxic substances list</b>	Listed
<b>- Rhode Island right-to-know list</b>	Listed



## MATERIAL SAFETY DATA SHEET

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<b>Product Name</b>	<b>Tetrabromoethane (TBE)</b>	
<b>Product id</b>	2360	
<b>Revision date</b>	21/10/2010	<b>Revision: 7</b>
<b>Supersedes</b>	14/02/2008	

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<b>Canada</b>	Listed in DSL
<b>-WHMIS hazard class</b>	D1B toxic materials D2A very toxic materials
<b>EU</b>	Reported in EINECS
<b>EC No.</b>	201-191-5
<b>Japan</b>	ENCS No. 2-77 ISHL No. 2-77
<b>Australia</b>	Listed in AICS
<b>New Zealand Inventory</b>	Listed in NZIoC
<b>China inventory</b>	Listed
<b>Korea</b>	Listed in ECL (KE-33261)
<b>Philippines</b>	Listed in PICCS
<b>Switzerland</b>	Listed in Giftliste 1 (G-2914)





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<b>Product Name</b>	<b>Tetrabromoethane (TBE)</b>	
<b>Product id</b>	2360	
<b>Revision date</b>	21/10/2010	<b>Revision: 7</b>
<b>Supersedes</b>	14/02/2008	

## 16. Other information

This data sheet contains changes from the previous version in section(s)  
9, 13

### Health, Safety & Environment Policy

We will strive to ensure that our operations and products meet the needs of the present global community without compromising the ability of future generations to meet their needs  
We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources  
Within the framework of our commitment to the Responsible Care program, we will provide a healthy and safe work environment for employees and will responsibly manage our products at all stages of their life cycle in order to protect human health and the environment whilst maintaining high production standards of operation

### TO MEET THIS COMMITMENT WE WILL:

- Comply with or exceed applicable national and international regulatory requirements and other requirements to which we subscribe
- Communicate openly and actively encourage dialogue with employees, customers and community concerning our products and operations
- Implement documented management systems consistent with and for promotion of the Responsible Care ethics
- Develop and supply products that can be manufactured, transported, used and disposed of safely whilst best meeting the needs of our customers
- Regularly assess, continually improve and responsibly manage health, safety and environmental risks associated with products and processes throughout their life-cycles
- Share knowledge and expertise with others and seek to learn from and incorporate improved practices into our own operations
- Educate and train employees, contractors and customers to improve their HSE performance
- Communicate up-to-date information to enable our workers, customers and other interested parties to handle our products in a safe and environmentally responsible manner
- Endeavor to work with customers, suppliers, distributors and contractors to foster the safe use, transport and disposal of our chemicals
- Support Product Stewardship programs in cooperation with customers, distributors and transporters

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## MATERIAL SAFETY DATA SHEET

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<b>Product Name</b>	<b>Tetrabromoethane (TBE)</b>	
<b>Product id</b>	2360	
<b>Revision date</b>	21/10/2010	<b>Revision: 7</b>
<b>Supersedes</b>	14/02/2008	

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*In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.*

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**End of safety data sheet**

# SAFETY DATA SHEET

Revision Date 16-Nov-2010

Revision Number 1

## 1. PRODUCT AND COMPANY IDENTIFICATION

### Product Identifier

**Product Description:** 1-Heptanol  
**Cat No.** 120360000; 120360010; 120360050; 120362500  
**Synonyms** Heptyl alcohol

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

**Recommended Use** Laboratory chemicals  
**Uses advised against** No Information available

### Details of the supplier of the safety data sheet

#### **Company**

Acros Organics BVBA  
Janssen Pharmaceuticaaan 3a  
2440 Geel, Belgium

**E-mail address** begel.sdsdesk@thermofisher.com

#### **Emergency Telephone Number**

For information in the US, call: 800-ACROS-01  
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99  
Emergency Number, US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300  
CHEMTREC Phone Number, Europe: 703-527-3887

## 2. HAZARDS IDENTIFICATION

### Classification of the substance or mixture

#### **REGULATION (EC) No 1272/2008**

Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Serious Eye Damage/Eye Irritation	Category 2A

### Classification according to EU Directives 67/548/EEC or 1999/45/EC

*For the full text of the R phrases mentioned in this Section, see Section 16*

**Symbol(s)** Xn - Harmful  
**R -phrase(s)** R36 - Irritating to eyes  
**Risk Combination Phrases** R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed

### Label Elements

*(Too many files)*

*(Too many files)*

**Signal Word** Warning

**Hazard Statements**

H312 - Harmful in contact with skin  
 H319 - Causes serious eye irritation  
 H332 - Harmful if inhaled

**Precautionary Statements - EU (§28, 1272/2008)**

P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
 P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

**Other Hazards**

No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC No.	Weight %	CAS-No	Classification	GHSCLAS	REACH Reg. No.
n-Heptyl alcohol 111-70-6	203-897-9	98	111-70-6	Xn; R20/21/22 Xi; R36	Eye Irrit. 2 (H319) - Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332)	

**For the full text of the R phrases mentioned in this Section, see Section 16**

### 4. FIRST AID MEASURES

**Description of first aid measures**

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes Obtain medical attention
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes Obtain medical attention
<b>Ingestion</b>	Do not induce vomiting Clean mouth with water Get medical attention
<b>Inhalation</b>	Remove from exposure, lie down Move to fresh air If breathing is difficult, give oxygen If not breathing, give artificial respiration Obtain medical attention
<b>Notes to Physician</b>	Treat symptomatically

### 5. FIRE-FIGHTING MEASURES

**Extinguishing media****Suitable Extinguishing Media**

Carbon dioxide (CO<sub>2</sub>) Dry chemical Use water spray to cool unopened containers chemical foam Do not use a solid water stream as it may scatter and spread fire

**Extinguishing media which must not be used for safety reasons**

No information available.

**Special hazards arising from the substance or mixture**

Combustible material Flammable

**Advice for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation

**Environmental precautions**

Prevent further leakage or spillage if safe to do so

**Methods and material for containment and cleaning up**

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust) Keep in suitable and closed containers for disposal

**7. HANDLING AND STORAGE****Precautions for Safe Handling**

Avoid contact with skin and eyes Do not breathe dust Do not breathe vapors or spray mist

**Conditions for safe storage, including any incompatibilities**

Keep in a dry, cool and well-ventilated place Keep container tightly closed Keep away from heat and sources of ignition

**Specific End Uses****8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Control parameters****Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL)**

No information available.

**Predicted No Effect Concentration (PNEC)**

No information available.

**Exposure controls****Engineering Measures**

Ensure adequate ventilation, especially in confined areas Ensure that eyewash stations and safety showers are close to the workstation location

**Personal protective equipment****Ey e Protection**

Goggles

**Ha nd Protection**

Protective gloves

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

**Resp iratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls**

No information available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Clear
<b>odor</b>	slight
<b>pH</b>	No information available.
<b>Vapor Pressure</b>	0.5 mbar @ 20 °C
<b>Vapor Density</b>	3.9
<b>Boiling Point/Range</b>	176°C / 348.8°F@ 760 mmHg
<b>Melting Point/Range</b>	-35°C / -31°F
<b>Flash Point</b>	73°C / 163.4°F
<b>Water Solubility</b>	2.85 g/L (100°C)
<b>Specific Gravity</b>	0.822
<b>Molecular Formula</b>	C7 H16 O
<b>Molecular Weight</b>	116.2

## 10. STABILITY AND REACTIVITY

### Reactivity

#### Chemical Stability

Stable under normal conditions.

#### Possibility of Hazardous Reactions

##### Hazardous Polymerization

Hazardous polymerization does not occur.

##### Hazardous Reactions .

No information available.

#### Conditions to Avoid

Incompatible products.

#### Incompatible Materials

Strong oxidizing agents, Strong acids, Acid anhydrides, Acid chlorides.

#### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## 11. TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Acute Toxicity

##### Product Information

No acute toxicity information is available for this product

##### Component Information

##### Component

n-Heptyl alcohol

	LD50 Oral	LD50 Dermal	LC50 Inhalation
	500 mg/kg ( Rat )	2 g/kg ( Rabbit )	

#### Chronic Toxicity

##### Carcinogenicity

There are no known carcinogenic chemicals in this product

<b>Sensitization</b>	No information available.
<b>Mutagenic Effects</b>	No information available
<b>Reproductive Effects</b>	No information available.
<b>Developmental Effects</b>	No information available.
<b>Target Organs</b>	No information available.
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information
<b>Endocrine Disruptor Information</b>	None known

## 12. ECOLOGICAL INFORMATION

### Toxicity

**Ecotoxicity effects** Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
n-Heptyl alcohol		33.1-36 mg/L LC50 96 h		

### Persistence and degradability

No information available

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

### Results of PBT and vPvB assessment

### Other adverse effects

No information available

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### **Waste from Residues / Unused Products**

Dispose of in accordance with local regulations

#### **Contaminated Packaging**

Empty containers should be taken for local recycling, recovery or waste disposal

## 14. TRANSPORT INFORMATION

### IMDG/IMO

<b>UN-No</b>	UN2810
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III
<b>Proper Shipping Name</b>	TOXIC LIQUIDS, ORGANIC, N.O.S.

### ADR

Not regulated

### IATA

<b>UN-No</b>	UN2810
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III

**14. TRANSPORT INFORMATION**

Proper Shipping Name TOXIC LIQUIDS, ORGANIC, N.O.S.

**15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories**

Component	EINECS	ELINCS	NLP TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
n-Heptyl alcohol	203-897-9	-		X	X	-	X	X	X	KE-18302 X

**Legend****TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**EINECS/ELINCS** - European Inventory Lists**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**CHINA** - China Inventory of Existing Chemical Substances**AICS** - Inventory of Chemical Substances**KECL** - Existing and Evaluated Chemical Substances**Chemical Safety Assessment****16. OTHER INFORMATION****Text of R phrases mentioned in Section 2-3**

R36 - Irritating to eyes

R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed

Revision Date 16-Nov-2010

Revision Summary Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

**Disclaimer**

The information provided on this SDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text

End of Safety Data Sheet