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# Material Safety Data Sheet

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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: ..... C<sub>2</sub>H<sub>2</sub>Br<sub>4</sub>  
Percent of Mixture (by volume) ..... 95%  
Manufacturer ..... 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 Corporation.





## MATERIAL SAFETY DATA SHEET

**Product**

**Tetrabromoethane (TBE)**

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**MSDS code: 2360**

**Version: 1**

**Date 24/04/1995**

### Identification of the substance & the company

Chemical Name	1,1,2,2-Tetrabromoethane
Chemical formula	C <sub>2</sub> HBr <sub>4</sub>
CAS number	79-27-6
Molecular weight	345.7
Type of product and use	For use in polymer/polyester fiber industry and for mineral separation
Company identification	Broomchemie B.V.
Address and telephone	P.O. Box 318, 4530 AH Terneuzen, The Netherlands, Tel. (0931) 1150-89000
Emergency telephone number: -For USA	Chemtrec (800)424-9300

### Composition/information on ingredients

Hazardous component(s)	1,1,2,2-Tetrabromoethane - 98.6%
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### Physical and chemical properties

Appearance	Colourless to yellowish liquid with a sweet pungent odour.
Melting point/range	1°C +-1°C
Boiling point/range	119°C (at 15 mmHg) 150°C (at 50 mm Hg)
Specific gravity	2.96
Vapour pressure	0.04 mm Hg at 24°C
Relative vapour density (air=1)	11.92
Evaporation rate (ether = 1)	>100
Solubility:	
- Solubility in water	0.063 gr/1000ml at 20°C 0.28 gr/1000ml at 80°C
-Solubility in other Solvents	Soluble in most organic solvents
Thermal decomposition	From ca. 239°C

### Hazards identification

Adverse human health effects	Very toxic by inhalation TBE is central nervous system depressant and a hepatotoxin. Irritant to eyes, skin and mucous membranes
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### Fire - fighting measures

Flash point	None
Auto-ignition temperature	335°C

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Flammable/Explosion limits	Non flammable
Extinguishing media	Material is non 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.

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## Toxicological information

Toxicity:

-Rat oral LD50	1200 mg/kg
-Rat dermal LD50	5250 mg/kg
-Rat inhalation LC50	549 mg/m <sup>3</sup> /4 hour

Effects of overexposure:

-Ocular	Irritant
-Dermal	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 bilirubinrla, moncytosis, pulmonary edema, liver and kidney damage.
-Ingestion	Irritant to mucous membranes. Symptoms as of inhalation.
Carcinogenicity	Not classified by IARC. <b>Not included in NTP 7th Annual Report on Carcinogens.</b>
Mutagenicity	Mutagenic by the Ames Test Was found mutagenic in DNA repair test with E. coli. Was found clastogenic in sister chromatid exchange with Chinese hamster ovary cells.
Chronic toxicity	Prolonged exposure may cause liver and kidney damage.

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## 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 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.

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Ingestion

Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

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

NOTE: Never give an unconscious person anything to drink.

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## **Ecological information**

Information on ecological effects

-LC50, fish

-BOD

Bioaccumulative potential

TBE is classified by IMO as a Marine Pollutant

19mg/l, 48 Hours (orange red-killifish)

29.0% (2 weeks)

BCF 0.5 ~ 7.0 (10 ug/l, 6 weeks)

BCF <2.9~8.2 (ug/l, 6 weeks)

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## **Stability and reactivity**

Stability

Materials to avoid

Conditions to avoid

Hazardous decomposition

-products

Hazardous polymerization

Stable under normal conditions

Reacts with chemically active metals or strong caustics.

In the presence of steam, contact with hot iron, aluminum and zinc may cause the formation of toxic vapours.

Softens or destroys most plastics and rubbers.

High temperatures

Hydrogen bromide, bromine and carbonil bromide

Will not occur

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## **Accidental release measures**

Personal precautions

After spillage/leakage

Evacuate area.

Full protective clothing, including self-contained breathing apparatus, must be used.

Absorb on sand or vermiculite and place in closed container for disposal.

Ventilate area and wash spill site after material pickup is complete.

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## **Disposal considerations**

Waste disposal

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

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

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## Exposure controls/personal protection

Exposure limits:

-TLV-TWA 1ppm (14mg/m<sup>3</sup>)

Ventilation requirements Mechanical exhaust required.  
Ventilation must be sufficient to maintain atmospheric concentration below TLV.

Personal protection equipment:

-Respiratory protection Approved respirator

- Gloves Protective gloves

- Eye protection Chemical safety goggle

- Others Body covering clothes and boots

industrial hygiene Safety shower and eyebath should be provided. Do not eat, drink or smoke until after-work showering and changing clothes

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## 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")

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## Transportation information

UN No. 2504

IMO-IMDG code Proper shipping name: TETRABROMOETHANE

Class: 6.1 - Toxic substances

Packing Group: III

Label: Toxic (6)

Marking: MARINE POLLUTANT  
(IMDG CODE - 6263, amdt.27-94)

ICAO/IATA Class:6.1

Packing Group: III

US DOT Proper shipping name: TETRABROMOETHANE

Class: 6.1 - Poisons

Packing Group: III

Label: HARMFUL - Stow Away from Foodstuffs (6)  
or POISON (6) OR TOXIC (6)

Marking: MARINE POLLUTANT

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## REGULATORY INFORMATION

USA

Reported in the EPA TSCA Inventory

# MATERIAL SAFETY DATA SHEET

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MATERIAL SAFETY DATA SHEET  
1-Heptanol, 98%

0036897

Print Date: MAR 24, 1995

Section 1 - Chemical Product and Company Identification

MSDS Name: 1-Heptanol, 98%

Catalog Numbers:

12036-0010, 12036-2500

Synonyms:

Heptyl alcohol

Company Identification: Acros Organics

Janssen Pharmaceuticaaan 3

B-2440

Geel, Belgium,

Company Phone Number: 32 1460 4200

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	%	Einecs#
111-70-6	1-Heptanol, 98%		203-897-9

Hazard Symbols: XN

Risk Phrases: 21/22 36

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colourless liquid.

Target Organs: None.

Potential Health Effects

Eye: Not available.

Skin:

Ingestion:

Inhalation:

Chronic:

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids.

Skin: Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion:



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DO NOT induce vomiting. Allow the victim to rinse his mouth and then to drink 2-4 cupfuls of water, and seek medical advice.

**Inhalation:**

Remove from exposure to fresh air immediately.

**Notes to Physician:**

Treat symptomatically and supportively.

**Antidote:**

No specific antidote exists.

**Section 5 - Fire Fighting Measures**

**General Information:**

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

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing media:**

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

**Autoignition Temperature:** 350°C (662.00°F)

**Flash Point:** 73°C (163.40°F)

**Explosion Limits, Lower:**

**Upper:**

**Section 6 - Accidental Release Measures**

**General Information:**

Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Clean up spills immediately, observing precautions in the Protective Equipment section.

**Section 7 - Handling and Storage**

**Handling:**

Wash thoroughly after handling.

Remove contaminated clothing and wash before reuse.

Avoid contact with eyes, skin, and clothing.

Avoid ingestion and inhalation.

**Storage:**

Store in a cool, dry place.

Keep container closed when not in use.

**Storage Code:** Not available.



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Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:**

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

**Exposure Limits**

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1-Heptanol, 98%	none listed	none listed	none listed

**OSHA Vacated PELs:**

1-Heptanol, 98%

No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear safety glasses and chemical goggles if splashing is possible.

**Skin:** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Wear a NIOSH/MSHA-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Not available.  
 Appearance: Clear colourless liquid  
 Odor: Not available.  
 pH: Not available.  
 Vapor Pressure: 0.5 mbar @ 20 C  
 Vapor Density: Not available.  
 Evaporation Rate: Not available.  
 Viscosity: Not available.  
 Boiling Point: 176.0°C (348.80°F)  
 Freezing/Melting Point: -36.00°C (-32.80°F)  
 Decomposition Temperature: Not available.  
 Solubility: insoluble  
 Specific Gravity/Density: .8220  
 Molecular Formula: C7 H16 O  
 Molecular Weight: Not available.



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Section 10 - Stability and Reactivity

**Chemical Stability:**

Stable under normal temperatures and pressures.

**Conditions to Avoid:**

Incompatible materials, strong oxidants.

**Incompatibilities with Other Materials:**

Strong oxidizing agents - acid chlorides - acid anhydrides.

**Hazardous Decomposition Products:**

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

Section 11 - Toxicological Information

**LD50/LC50:**

Not available.

**Carcinogenicity:**

1-Heptanol, 98%

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Section 12 - Ecological Information

**Ecotoxicity:**

Not available.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations

**RCRA D-Series Maximum Concentration of Contaminants:** Not listed.

**RCRA D-Series Chronic Toxicity Reference Levels:** Not listed.

**RCRA F-Series:** Not listed.

**RCRA P-Series:** Not listed.

**RCRA U-Series:** Not listed.

Not listed as a material banned from land disposal according to RCRA. The compound should be burned. Ideally, all hydrocarbons and related solvents should be burned in an approved presence of sodium carbonate and calcium hydroxide (slaked lime). The solid or liquid absorbed on vermiculite should be wrapped in paper and burned in an approved incinerator.



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Section 14 - Transport Information

US DOT

Shipping Name: Contact Acros for shipping information.  
IMCO Not hazardous for transportation.  
IATA Not hazardous for transportation.  
Canadian TDG No information available.

Section 15 - Regulatory Information

European Labelling in accordance with EC directives

Hazard Symbols: XN

Risk Phrases: R 21/22 Harmful in contact with skin and if  
swallowed.  
R 36 Irritating to eyes.

Safety Phrases: S 24/25 Avoid contact with skin and eyes.

A. Federal

TSCA

CAS# 111-70-6 is listed on the TSCA inventory.

Health and Safety Reporting List:

None of the chemicals in this product are on the Health & Safety  
Reporting List.

Chemical Test Rules:

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b:

None of the chemicals in this product are listed under TSCA Section  
12b.

TSCA Significant New Use Rule:

None of the chemicals in this material have a Significant New Use  
Rule under TSCA.

CERCLA/SARA

None of the chemicals in this material have an RQ.

Section 302 (TPQ):

None of the chemicals in this product have a TPQ.

This material does not contain any chemical reportable under Section  
313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous  
Substances under the CWA.

None of the chemicals in this product are listed as Priority  
Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants  
under the CWA.

OSHA:



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None of the chemicals in this product are considered highly hazardous by OSHA.

**B. State**

1-Heptanol, 98% is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California No Significant Risk Level:**

None of the chemicals in this product are listed.

**C. International**

**Canada**

CAS# 111-70-6 is listed on Canada's DSL/NDSL List.

CAS# 111-70-6 is not listed on Canada's Ingredient Disclosure List.

Section 16 - Additional Information
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**Additional Information:**

No additional information available.

**MSDS Creation Date:**

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