

Material Safety Data Sheet

Product Name: **Brown Indicating Liquid**

Product Part Number: **9200**

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)14%
 ManufacturerBroomchemie B.V.
 DistributorMorre-Tec Industries, Inc.
 MSDSAttached

Chemical Ingredient No. 2

Common Name:Diazene-42
 Chemical Family:Brominated ethylbenzene isomers
 Percent of Mixture (by volume):86%
 Manufacturer:Diaz Chemical Corp.
 MSDS:Attached

Chemical Ingredient No. 3

Common Name:Brown 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.





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Identification of the substance & the company

Chemical Name	1,1,2,2-Tetrabromoethane
Chemical formula	C ₂ HBr ₄
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.

Toxicological information

Toxicity:

-Rat oral LD50	1200 mg/kg
-Rat dermal LD50	5250 mg/kg
-Rat inhalation LC50	549 mg/m ³ /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. Not included in NTP 7th Annual Report on Carcinogens.
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.

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.

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)

Stability and reactivity

Stability
Materials to avoid

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.

Conditions to avoid
Hazardous decomposition
-products
Hazardous polymerization

High temperatures
Hydrogen bromide, bromine and carbonil bromide
Will not occur

Accidental release measures

Personal precautions

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

After spillage/leakage

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

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/m³)

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

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")

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

REGULATORY INFORMATION

USA

Reported in the EPA TSCA Inventory

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Prepared by the HSE Division in Israel

telefax: +/972-7-297832

telephone: +/972-7-297830

telex: 5343

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Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072



IDENTITY (As Used on Label and List)
DIAZENE - 42

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

N/A= Not Available

Manufacturer's Name
DIAZ CHEMICAL CORPORATION
Address (Number, Street, City, State, and ZIP Code)
P.O. BOX 194

40 JACKSON STREET

HOLLEY, NEW YORK 14470

Emergency Telephone Number
(716) 638-6321
Telephone Number for Information
(716) 638-6321
Date Prepared
May 28, 1986
Signature of Preparer (optional)

Marc S. MacClure

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
BROMOETHYLBENZENES CAS# 1585-07-5	N/A	N/A	N/A	
DIBROMOETHYLBENZENES CAS# 30812-87-4	N/A	N/A	N/A	
TRIBROMOETHYLBENZENES CAS# 31195-17-2	N/A	N/A	N/A	

Section III — Physical/Chemical Characteristics

Boiling Point 390-580°F	200-300°C	Specific Gravity (H ₂ O - 1) 15/15°C	1.73-1.75
Vapor Pressure (mm Hg.)	N/A	Melting Point less than 0°C	N/A
Vapor Density (AIR - 1)	9.4	Evaporation Rate (Butyl Acetate - 1)	less than
Solubility in Water Negligible			
Appearance and Odor Clear liquid, colorless to light yellow, mothball odor			

Section IV — Fire and Explosion Hazard Data

Flesh Point (Method Used) NONE, greater than 200°F	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media WATER, CO ₂ , CHEMICAL FOAM			
Special Fire Fighting Procedures NONE			
Unusual Fire and Explosion Hazards NONE			

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid Avoid contact with finely divided reducing metals, such as powdered aluminum
	Stable	X	

Incompatibility (*Materials to Avoid*) Avoid contact with finely divided reducing metals

Hazardous Decomposition or Byproducts Hydrogen Bromide, Carbon Monoxide, Carbon Dioxide

Hazardous polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation? X	Skin? X	Ingestion? X
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Health Hazards (*Acute and Chronic*) INHALATION- Probable nasal irritation possible liver and kidney damage upon repeated or long term contact.

SKIN-May cause irritation

Carcinogenicity:	N/A	NTP? NO	IARC Monographs? NO	OSHA Regulated? NO
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Signs and Symptoms of Exposure Nasal or skin irritation

Medical Conditions Generally Aggravated by Exposure N/A

Emergency and First Aid Procedures SKIN-Wash with soap and water. EYE-Irrigate with large volumes of water. INGESTION-Induce vomiting. INHALATION-Remove to fresh air. See a physician.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled Position pail or drum to minimize leak. Absorb spilled material in absorbant such as clay, or other appropriate material.

Waste Disposal Method LIQUID- Incineration at Hazardous Waste Incineration Facility
SOLIDS (from spill clean-up)- Landfill at Secure Chemical Landfill

Precautions to Be Taken in Handling and Storing Practice reasonable care to avoid skin and eye contact and to avoid breathing vapors.

Other Precautions N/A

Section VIII — Control Measures

Respiratory Protection (*Specify Type*) Organic Vapor Cannister

Ventilation	Local Exhaust "Adequate" Ventilation	Special	N/A
	Mechanical (<i>General</i>) N/A	Other	N/A

Protective Gloves Rubber Gloves Eye Protection Safety Glasses

Other Protective Clothing or Equipment Coveralls