

TRADE NAME: 1,3-BUTYLENE GLYCOL-P

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS No.: 09-07

Trade Name:

1,3-BUTYLENE GLYCOL-P

General Use: Raw materials for manufacturing polyester plasticizers.

Company: KYOWA HAKKO CHEMICAL CO., LTD.

Address: Nihonbashi-Muromachi center building, 3-2-15 Nihonbashi-Muromachi, Chuo-ku, Tokyo, 103-0022, Japan

Department for Information: Environment Safety & Quality assurance Department

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Emergency Contact Number:

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2. INFORMATION ON COMPOSITION

Chemical Name 1,3-BUTYLENE GLYCOL

Synonym 1,3-Butanediol

Structural Formula $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}_2\text{OH}$

Molecular Formula $\text{C}_4\text{H}_{10}\text{O}_4$

Molecular Weight 90.1

UN-No. Not regulated.

2.1 The product is composed of the following important ingredients:

(a) 1,3-Butylene glycol 99% UP

(b) --

2.2 Characterization of important components according to 2.1:

	CAS No.	EINECS No.	ENCS No.	WARNING SIGNS	R-PHRASE, and S-PHRASE
(a)	107-88-0	203-529-7	(2)-235	Not determined	Not determined
(b)	--				

3. HAZARD IDENTIFICATION

3.1 Emergency Overview: No special hazard.

3.2 Potential Health Effects: No special hazard.

3.3 Chronic Effects: No data available (IARC, NTP, ACGIH, OSHA).

(No chronic health effects are expected from use of this product. Individuals with preexisting diseases of the central nervous system, kidneys, liver, cardiovascular system, lungs or bone marrow may have increased susceptibility to the toxicity of excessive exposures.)

4. FIRST AID MEASURES

4.1 General Instructions: There are no general instructions necessary.

4.2 Eye Contact: Immediately flush eyes with plenty of clean water for at least 15 minutes while holding eyelids open. Get prompt medical attention.

4.3 Skin Contact: Remove contaminated clothing. Wash the affected area with plenty of soap and water. If irritation develops, see a physician.

4.4 Ingestion: Rinse mouth. Get prompt medical attention. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration.

4.5 Inhalation: If vapor or fume is inhaled, remove individual(s) to fresh air. In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Get prompt medical attention.

4.6 Notes to the Physician: There is no special information available. Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Flammable Properties

Flash point (in open cup): 115 °C

Autoflammability: 377 °C

Flammable Limits: 1.9 ~ 12.6 vol%

5.2 Suitable Extinguishing Media: Water spray, ABC dry chemicals, protein type air foams or carbon dioxide.

Carbon dioxide may be ineffective on large fires, due to lack of cooling capacity

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and possible reignition. Not be used for safety reasons: water jet.

5.3 Special Exposure Hazards Arising from Substance or Combustion Products:

Formation of carbon monoxide and carbon dioxide at the combustion of the product. Thermal decomposition may release toxic and irritating vapors. Thermal influence results in a pressure build-up in closed drums – danger of rupture.

5.4 Special Protective Equipment Required for Fire-fighting:

Cool product containers exposed to fire with water spray. In case of fire, wear a self-containing breathing apparatus and OSHA/MSHA approved full protective clothing. Collect contaminated water in spillage containers, if any possible and take care for disposal.

6. ACCIDENTAL RELEASE MEASURES

Lock all drains. Wear protective equipment (see Chapter 8.3). Remove incompatible substances. Take up product by mechanical means avoiding mist formation and place into marked, resistant container.

Cover residue with an inert adsorbent, take up into marked, resistant container and hold for waste disposal as described in Chapter 13. Carefully rinse affected ground with plenty of water.

7. HANDLING AND STORAGE

7.1 Handling: Handle product only in well ventilated areas, Exhaust product vapor. Check durability and applicability of tools and equipment prior to use. Exhaust released product vapors at thermal treatment directly at origin of formation. Provide eye bath and shower at working place.

7.2 Storage: Store product in tightly closed original containers in a dry, dark and cool place on impermeable ground. Take all measures to prevent product from entering drains or water courses in case of an accidental spill. Avoid inhalation of vapors during refilling processes. Always keep drums tightly closed.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Technical Facility Design:

Install an efficient exhaust system, when treating the heated product.

8.2 Components with Exposure Limits:

The discussed product does not contain any components with exposure limits.

8.3 Personal Hygiene and Protective Equipment

Follow the general guidelines of good industrial hygiene. Avoid any direct contact with the product. Do not breathe product mists and vapor. Change contaminated clothing and thoroughly clean before reuse.

Respiratory:	None required in normal use, use air-supplied mask if used in confined area.
Eye Protection:	Chemical safety Goggles.
Hand Protection:	Impermeable gloves.
Skin Protection:	Working cloth and safety shoes.
Other Protective Equipment:	Eye bath and washing facilities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Color:	Clear colorless.
Odor:	Almost odorless.
9.1 Change in physical state	
Melting Point:	-77 °C
Boiling Point:	207.5 °C/103kPa
9.2 Density:	1.006 g/cm ³ (20 °C)
9.3 Vapor Pressure:	8 Pa (=0.06 mmHg, 20 °C)
9.4 Vapor Density:	3.1
9.5 Solubility	
Water Solubility in H ₂ O:	Miscible
Solubility in organic solvent:	Miscible with acetone, and alcohol.
9.6 Flash Point (in open cup):	115 °C
9.7 Autoflammability:	377 °C
9.8 Explosion Limits (%):	1.9 ~ 12.6 vol%
9.9 Partition Coefficient n-Octanol/Water:	logPow= -0.29
9.10 Further Data:	--

10. STABILITY AND REACTIVITY

Reactivity:	Stable under normal conditions.
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Conditions to Avoid:	Heat, sparks, and ignition sources.
Products to Avoid:	Peroxides, and oxidizers.
Hazardous Decomposition Products:	Formation of carbon monoxide, carbon dioxide at the combustion of the product.
Polymerization:	Will not polymerize.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity	oral:	rat	LD ₅₀	18.61 g/kg ¹⁾
		mouse	LD ₅₀	12.98 g/kg ¹⁾
Irritation	dermal: skin:	rabbit	LD ₅₀	>20 g/kg ¹⁾
		rabbit	500 mg (24H)	Mild ¹⁾
		(Essentially non-irritating. Practically non-toxic to animals by absorption ^{2), 3)} .)		
	eye:	rabbit	500 mg (24H)	Mild ¹⁾
		(Essentially non-irritating ²⁾ .)		
Sensitization:		human	Not sensitized ⁴⁾ .	
Repeated Dose Toxicity	oral:	rat	NOAEL	0 ~ 10 % (2 years) ⁴⁾
		(No adverse effects compared to control.)		
		dog	NOAEL	0 ~ 3 % (2 years) ⁴⁾
		(No adverse effects compared to control.)		
Mutagenic Data:			Negative ⁵⁾ .	
		(In vitro, no evidence of mutagenicity. In vivo, no evidence of mutagenicity ²⁾ .)		
Reproduction Toxicity	oral:	rat	TDL ₀	42.36 g/kg (6 ~ 15 D preg) ¹⁾
		(Evidence of possible reproductive effects in a five-generation study. ²⁾)		
Developmental Toxicity	oral:	rat	NOAEL	7.06 g/kg (6 ~ 15 D preg) ²⁾
Carcinogenicity:	NTP		NO	
	IARC Monographs		NO	
	OSHA Regulated		NO (No information is available.)	
	(No evidence of possible carcinogenicity to dogs and rats in two-year-feeding-studies ²⁾ .)			

12. ECOLOGICAL INFORMATION

Biodegradation (BOD):	Biodegradable (79%, after 28days) ⁶⁾ .
Acute Toxicity to fish:	No data available.

Do not release product into the environment. Purify polluted waste water before its release into the drains.

13. DISPOSAL CONSIDERATIONS

Comply with all EU, national and local regulations.

Do not dump this material into sewers, on the ground or into any body of water.

- 13.1 Product Disposal: Incineration is the recommended method of disposal. Dispose of in accordance with all applicable local and national regulations. Use an approved disposal company. If correctly incinerated this material will decompose to carbon dioxide, nitrogen oxides and water.
- 13.2 Container Disposal: Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near to the container. Empty containers may contain hazardous residues. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. After cleaning, all existing labels should be removed. Do not incinerate closed containers.

14. TRANSPORT REGULATIONS

UN Class:	Class not regulated.
UN No.:	Not regulated.

Air Transport	IATA/ICAO:	No classification assigned.
Sea Transport	MDG CODE:	No classification assigned.
Land Transport	ADR/RID:	No classification assigned.

The product is not covered by transport regulations.

15. REGULATORY INFORMATION

EINECS No.: 203-529-7

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WARNING SIGNS: Not determined.
Risk and Safety Phrases: Not determined.

16. OTHER INFORMATION

LITERATURE:

- 1) NIOSH, Registry of Toxic Effects of Chemical Substances (RTECS, No. EK0440000)
- 2) Celanese Data Sheet 1990-01, Celanese Canada Inc., 195 the West Mall, 10th Floor Etobicoke Ontario Canada.
- 3) Environ Dermatol 4-3: 195-201, 1997
- 4) European Chemicals Bureau, International Uniform Chemical Information Database (IUCLID, CAS 107-88-0)
- 5) Patty's Industrial Hygiene and toxicology 4th edition, Japanese Version, (2000)
- 6) KYOWA HAKKO CHEMICAL CO., LTD. Unpublished data; HODOGAYA CONTRACTLAB CO., LTD., Preliminary assessment of ready biodegradability of 1,3-BTYLENE GLYCOL, NoD-9713 (1998)

MSDS Status: Revised Section 1

Information given herein is to the best of our knowledge and is only related to the product as delivered in ordered to give a complete review of safety aspects accurate as of the date indicated. All data given are never meant to guarantee product properties.