

SECTION 1 : Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product Name : DTI01-01LB

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Water-based ink for inkjet printer.

Uses advised against : Do not use for the other application. Restricted to professional users

1.3. Details of the supplier of the safety data sheet

Company Name : InkTec Co.,Ltd.

Address : #108, Neungan-ro, Danwon-gu, Ansan-city, Gyeonggi-do, 425-839, Korea

Tel : +82-31-494-0001

Fax : +82-31-492-2041

Website : <http://kr.inktec.com/>**1.4. Emergency telephone number**

Emergency number : Centro Antiveleni (Poisons Centre)

: Dipartimento di Tossicologia Clinica Universita Cattolica del Sacro Cuore Roma

Emergency Telephone Number : +39 06 305 4343

SECTION 2 : Hazards identification**2.1. Classification of the substance or mixture**

Classification according to : Acute toxicity,oral : Hazard category 4

Regulation (EC) No 1272/2008 (CLP) : Serious eye damage/eye irritation : Hazard category 2A

Classification according to : Xn; R22 Xi; R36

Directive 1999/45/EC (DPD)

2.2. Label elements

Labeling according to

Regulation (EC) No 1272/2008 (CLP)

Hazard symbols : 
GHS07

Signal word : Warning

Hazard statements : H302 : Harmful if swallowed

H319 : Causes serious eye irritation

Precautionary statements

Precautionary : P264 : Wash ... thoroughly after handling.

: P270 : Do no eat, drink or smoke when using this product.

: P280 : Wear protective gloves/protective clothing/eye protection/face protection.

: P301+P312 : IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

: P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes.

: Remove contact lenses, if present and easy to do. Continue rinsing.

: P312 : Call a POISON CENTER or doctor/physician if you feel unwell.

: P330 : Rinse mouth.

: P337+P313 : If eye irritation persists: Get medical advice/attention.

: No information available.

: P501 : Dispose of contents/container to ...
..in accordance with local/regional/national/international regulation(to be specified).



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2.3. Other hazards

Other hazards

: No information available

SECTION 3 : Composition/information on ingredients

3.1. Substance

Substances

: No information available

3.2. Mixture

Ingredients	% By weight	CAS No.	EC No.	EU Classification				Note	
				67/548/ EEC (DSD)	CLP				
					Hazard class and category codes	Hazard statement codes	Pictogram/ Signal word codes		
Black Disperse Dye	1 < C < 7	Proprietary	Proprietary						
Ethane-1,2-diol	16 < C < 23	107-21-1	203-473-3	Xn; R22	Acute Tox. 4*	H302	GHS07		
Glycerol	4 < C < 10	56-81-5	200-289-5						
DL-hexane-1,2-diol	1 < C < 5	6920-22-5	230-029-6	Xi, R36	Eye Irrit. 2	H319	GHS07		
Dispersion	1 < C < 5	Proprietary	Proprietary						
Water	60 < C < 70	7732-18-5	231-791-2						

* Substance is classified in terms of Regulation (EC) No. 1272/2008 Annex VI.

* Substance with workplace exposure limits.

* Substance is included in the Candidate List of Substances of Very High Concern for Authorisation.

SECTION 4 : First aid measures

4.1. Description of first aid measures

First-aid measures general

: If you feel unwell, seek medical advice.

First-aid measures after inhalation

: If breathing is difficult, give oxygen.

: Give artificial respiration if not breathing, and get immediate medical attention.

: If the person develops a symptom, move him to an area where fresh air is available.

: If the person develops a side effect, move him to an area free of contamination.

: Get medical attention.

First-aid measures after skin contact

: Get medical attention, if needed.

: Wash skin with soap and plenty of water for least 15 minutes

: Thoroughly clean and dry contaminated clothing and shoes before reuse.

: Remove contaminated clothing and shoes and wash skin with water and soap for at least 15 minutes.

: If skin is irritated or shows other symptoms, get medical attention.

: While lifting upper eyelid, flush eyes with plenty of water for at least 15 minutes and then get immediate medical attention.

: Get medical attention.

First-aid measures after eye contact

- : Never make an unconscious person vomit or drink fluids.
- : If vomiting occurs, keep head lower than hips to help prevent aspiration.
- : If person is unconscious, turn head to side.
- : If the person has swallowed a large quantity, let him get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2 and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

Other Information

- : Treat symptomatically.

SECTION 5 : Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media

- : Powder fire extinguishing agent.
- : Spray stream.
- : Carbon dioxide
- : General foam extinguishing agent
- : Alcohol resistant foam extinguishing agent
- : Water spray.
- : No data available.

Unsuitable extinguishing media

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards

- : There's a small chance of fire.
- : A mixture of vapor and air can be explosive at above a certain ignition point
- : Vapor or gas can spread instantly after being ignited from a distanced ignition point.
- : Vapor is heavier than air.
- : Halogen gas can be produced when it contacts metal
- : May develop irritating, corrosive, or toxic gases by fire.
- : Discharge of toxic smoke, like carbon oxide, sulfur compounds, acrolein and nitroxide.

Hazardous combustion products

5.3. Advice for firefighters

Precautionary measures fire

- : Exposure to fire/heat : keep upwind.
- : Exposure to fire/heat : have neighbourhood close doors and windows
- : Move containers from fire area if it can be done without risk.
- : Do not approach both ends of the tank
- : Withdraw immediately in case of rising sound from safety devices due to the fire or discoloration discoloration of tank.

Firefighting instructions

- : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- : Cool container with flooding quantities of water until well after fire is out.
- : When there's a fire in shipping and unloading or storage area : Cool container with flooding quantities of water until well after fire is out by using unmanned hose holders or monitor nozzles.
- : If that is not possible, consider following preventive measures
- : Keep unnecessary people away, isolate hazard area and deny entry.
- : And allow the fire to burn itself out.
- : Flood with fine water spray.
- : Do not scatter spilled material with high-pressure water streams
- : Cool containers with water spray until well after the fire is out.
- : Stay upwind and keep out of low areas.
- : Dike for later disposal.
- : Use extinguishing agent appropriate for surrounding fire. : Flood with fine water spray.
- : The most effect measures would be removing fuel source and suffocating by blocking air supply.



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Protection during firefighting

- : Do not enter fire area without proper protective equipment, including respiratory protection.
- : Fire involving tank, rail, car, or tank truck : Evacuation for 0.8Km (1/2 mile) in all directions.
- : Shut off the source of the leakage before trying to extinguish fire.
- : Apply water from a protected location or from a safe distance.
- : Avoid inhalation of material or combustion by-products.
- : Dike for later disposal.

SECTION 6 : Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment : Gloves, Protective clothing, see "Material-Handling" to select protective clothing
Emergency procedures : Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area
: Absorb with paper.
: Ventilate to eliminate all vapors, and burn papers.
: Eliminate all ignition sources.
: Absorb with dry earth, sand or other non-combustible material, and place in a container.
: Ventilate a closed area before entering.
: Use water spray to reduce vapors.
: Store in an area separated from water supply and sewer
: Check shipping information and included documents, and contact related agencies and companies to find detailed information on the material.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Keep away from heat, fire, flame and other sources of ignition
: Stop leak if without risk.
: Deny entry to an area within 25~50m radius from leak, and keep unnecessary people away
: Stop leak, if it can be done without risk to worker.
: Stay upwind.
: Place leaked material in an appropriate container to dispose.

6.2. Environmental precautions

Environmental precautions : Prevent entry to sewers and public waters. Store in an area separated from water supply and sewer.
: Notify authorities if liquid enters sewers or public waters Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Cleaning Methods

- : Collect spillage. Store away from other materials.
- : Place leaked material in an appropriate container to dispose.
- : Absorb with dry earth, sand or other non-combustible material.
- : Prevent entry into waterways, sewers, basements or confined areas.
- : Stay upwind and keep out of low areas.

Containment : Dike for later disposal.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Do not touch a damaged container or spilled material without wearing proper protective gears.
: Notify the central government and local independent commission for discharge of amounts
: greater than or equal to the standard..
: Keep unnecessary people away, isolate hazard area and deny entry.

6.4. Reference to other sections

Other sections

- : See Section 7 for information on safe handling.
- : See Section 8 for information on personal protection equipment.



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: See Section 13 for disposal information.

SECTION 7 : Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

- : Wash hands and other exposed areas with mild soap and water before eating, drinking
- : Do not press, cut, weld, solder, join, perforate, grind, or heat.
- : An empty container containing residues (liquid, steam) can be dangerous.
- : Store by closing a container.
- : Store in a closed container.
- : Do not inhale dust, steam, mist or gas.
- : Minimize development and accumulation of dust.
- : Use spark-proof tools and explosion-proof equipment.
- : Do not inhale or ingest.
- : Wash hands before eating.
- : Remove contaminated clothing and wash before reuse.
- : Perform proper ventilation.
- : Wash thoroughly after handling.
- : Use only in a well ventilated area.
- : Handle according to current laws and regulations.
- : Do not get in eyes, on skin and clothing.
- : Avoid flame, sparks, static electricity and other ignition sources.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- : Keep only in the original container in a cool, well ventilated place away from : Ignition sources, Incompatible materials. Keep container closed when not in use.

: Keep container closed when not in use.

: Store and handle in accordance with all current regulations and standards.

: Avoid contacting strong oxidizer.

: Sources of ignition. Direct sunlight.

: Keep separated from incompatible substances

: Keep substance away from heat source

: Keep away from sources of ignition.

Prohibitions on mixed storage

: Keep substance away from oxidizing agents

: Avoid contacting halogen or halogen compounds.

Storage area

: Store in a cool, dry place.

: Store at ambient temperature

Special rules on packing

: Special requirements closing, clean, correctly labelled, meet the legal requirements.

: Secure fragile packagings in solid container.

Packaging materials

: Suitable material : No data available

: Material to avoid : No data available

7.3. Specific end use(s)

Specific end use(s)

: No data available

SECTION 8 : Exposure controls/personal protection

8.1. Control parameters

Ingredients	CAS No.	Workplace exposure limit				Notation	
		Long-term exposure limit (8-hour TWA reference period)		Short-term exposure limit (15-minute reference period)			
		ppm	mg/m ³	ppm	mg/m ³		
-	-	-	-	-	-	-	

* Workplace exposure limits for substances contained in the mixture



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8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Protective gloves are not required.
Eye protection	: Wear appropriate chemical resistant gloves. : Provide an emergency eye wash fountain and quick drench shower in the immediate work area. : Wear splash-proof eye goggles.
Respiratory protection	: Wear splash resistant safety goggles with a face shield. : Consider warning properties before use. : None required under normal operating conditions. : None required under normal operating conditions. : Respiratory protection is ranked in order from minimum to maximum. : Wear respiratory protection that has received the Korea Occupational Safety and Health Agency's black "Safety" mark
Body protection	: Body protection clothing is not required : Wear appropriate chemical resistant clothing.
Environmental exposure controls	: Do not allow to enter sewers, surface and ground water
Other information	: Do not eat, drink or smoke during use.

SECTION 9 : Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Data	Properties	Data
Appearance	Black Liquid	Upper/lower flammability or explosive limits	No data available
Odor	Odorless or mild odor	Vapor pressure	No data available
Odor threshold	No data available	Vapor density	Greater than 1 (air=1)
pH	8.0 ~ 9.0	Relative density	1.06 at 68°F / 20°C
Melting point/Freezing point	Less than 32°F / 0°C	Solubility in water	Miscible
Boiling point	Greater than 212°F / 100°C	Partition coefficient n-octanol/water	No data available
Flash point	Greater than 230°F / 110°C	Auto ignition temperature	No data available
Evaporation rate	No data available	Decomposition temperature	No data available
Flammability (Solid/Gas)	No data available	Viscosity	3.7 ~ 4.3 cP

9.2. Other information

Other information	: No data available
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SECTION 10 : Stability and reactivity

10.1. Reactivity

Reactivity	: No data available
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10.2. Chemical stability

Chemical stability	: Do not store for an extended period, or store or use in an area in direct contact with air and sun and above room temperature. : May form explosive peroxides. : Stable at room temperature and atmospheric pressure.
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10.3. Possibility of hazardous reactions



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Possibility of hazardous reactions : Stable at room temperature and atmospheric pressure.
: Polymerization will not occur.

10.4. Conditions to avoid

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.
: Keep separated from incompatible substances.
: If container is exposed to heat, it may rupture or explode

10.5. Incompatible materials

Incompatible materials : acid, base, oxidizing agents, metallic oxide, peroxides, reducing agents, halogen, inflammables, mineral salt.

10.6. Hazardous decomposition products

Hazardous decomposition products : Produce carbon oxide and sulfur compounds during thermal decomposition.
: Variety of organic matters, cyanide compounds, ammonia, nitrogen oxide.

SECTION 11 : Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Ingredients	CAS No.	Oral	Eye	Inhalation
Ethane-1,2-diol	107-21-1	LD50 4700 mg/kg Rat	No data available	No data available
Glycerol	56-81-5	LD50 12600 mg/kg Rat	No data available	No data available
DL-hexane-1,2-diol	6920-22-5	LD50 6166 mg/kg Rat	No data available	No data available

Skin corrosion/irritation : Skin rabbit, according to skin Irritation test.

Serious eye damage/irritation : According to rabbit tests, it can develop corneal opacity with pain to human, .
: but it was recovered in a few days.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (STOT-single exposure) : It develops lethargy, dizziness, dyspnea, metabolic acidosis, hematuria, or liver disease
: When it is inhaled, it irritates nose and neck

Specific target organ toxicity (STOT-repeated exposure) : It develops repetitive respiratory irritation
: According to animal tests, inhalation can cause toxic effects on blood.

Aspiration hazard : Not classified

Potential Adverse human health effects and Symptoms : Not classified

SECTION 12 : Ecological information

12.1. Toxicity

Toxicity : No data available

12.2. Persistence and degradability

Persistence and degradability : No data available



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12.3. Bioaccumulative potential

Bioaccumulative potential : No data available

12.4. Mobility in soil

Mobility in soil : No data available

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment : No data available

12.6. Other adverse effects

Other adverse effects : No data available

SECTION 13 : Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations
: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation,
: Please dispose by using one of the following methods
: 1. Neutralize, hydrolyze, oxidize, or restore it.
: 2. Incinerate or melt it in high temperature
: 3. Solidify it.
Ecology - waste materials : Avoid release to the environment.
: Consider all cautions specified in all applicable regulations of Waste Management Law

SECTION 14 : Transport information

14.1. UN number

UN number : No data available

14.2. UN proper shipping name

UN proper shipping name : No data available

14.3. Transport hazard class(es)

Transport hazard class(es) : No data available

14.4. Packing group

Packing group : No data available

14.5. Environmental hazards

Environmental hazards : No data available

14.6. Special precautions for user

Other adverse effects : No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to Annex II : No data available
of MARPOL 73/78 and the IBC Code

SECTION 15 : Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

Classification according to
Regulation (EC) No 1272/2008 (CLP)

: The substances in the mixture are not subject to Authorisation under Title VII or
Restrictions under Title VIII of Regulation (EC) No. 1907/2006.
: COMMISSION REGULATION (EU) No 830/2015 of 28 May 2015
amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on
the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Candidate List of Substances of Very High

: Not classified



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Concern for Authorisation (Annex XVII) : Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as toxic to reproduction category 1A or 1B (Table 3.1) or toxic to reproduction category 1 or 2 (Table 3.2) and listed
Carcinogen category 1A (Table 3.1)/ carcinogen category 1 (Table 3.2) listed in Appendix 1
Carcinogen category 1B (Table 3.1)/ carcinogen category 2 (Table 3.2) listed in Appendix 2

: Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows : 'Restricted to professional users'.

Authorisation list (Annex XIV) : Not classified

Classification according to Directive 1999/45/EC (DPD)

National Regulations

Korea

The Korea Industrial Safety and Health Act :

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Work environment measuring materials Special health diagnosis material (Inspection cycle: 12 months) Exposure limits for chemical and biological materials
Glycerol	56-81-5	Exposure limits for chemical and biological materials

The Enforcement Decree of Toxic Chemicals Control Act : No data available

The Safety Control of Dangerous Substances Act :

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Class 4 Group 3 petroleum, soluble 4000ℓ
Glycerol	56-81-5	Class 4 Group 3 petroleum, soluble 4000ℓ
DL-hexane-1,2-diol	6920-22-5	Class 4 Group 3 petroleum, soluble 4000ℓ

The Waste Management Law

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Authorized waste
Glycerol	56-81-5	Authorized waste

Other regulations : No data available

15.2. Chemical safety assessment

Chemical safety assessment : Chemical safety assessment has not been carried out for this mixture

SECTION 16 : Other information

Data of issue : 29.May. 2009

Latest Revision and Revision data : [Revision] 1.4 [Date] 12. April, 2019

Instructions for the training : Product handling instruction shall be included into the educational system about the safety work (Initial training, training at the workplace, repeated training) according to specific conditions

at the workplace

Recommended restrictions on use

(i.e. non-statutory recommendations by supplier)

: Mixture should not be used for any other purpose than for which is appointed (point 1.2).

Because of the fact that specific conditions of use of mixture are out of supplier's control, It is responsibility of the user to adjust the prescribed warnings to local laws and regulations.

Safety information describes the product in terms of safety and it cannot be considered as technical information about product

Sources of key data used to compile the Safety Data Sheet

: SDS was elaborated according to requirements set in Annex II of Regulation (EC) No 1907/2006 of the European Parliament and of the Council. SDS was prepared using data from the producer.

Purpose of SDS

: Purpose of this SDS is to provide relevant information for users of product to ensure proper handling and control of risks/hazards.

Classification according to

NFPA Rating

Ingredients	CAS No.	NFPA Classification	NFPA Classification
Ethane-1,2-diol	107-21-1	NFPA 704 Diamond	
		Health hazards	2 (Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

Ingredients	CAS No.	NFPA Classification	NFPA Classification
Glycerol	56-81-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

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Ingredients	CAS No.	NFPA Classification	NFPA Classification
DL-hexane-1,2-diol	6920-22-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	2 (Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g. diesel fuel , paper, sulfur) and multiple finely divided suspended solids that do not require heating before ignition can occur.)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

SECTION 1 : Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product Name : DTI02-01LC

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Water-based ink for inkjet printer.

Uses advised against : Do not use for the other application. Restricted to professional users

1.3. Details of the supplier of the safety data sheet

Company Name : InkTec Co.,Ltd.

Address : #108, Neungan-ro, Danwon-gu, Ansan-city, Gyeonggi-do, 425-839, Korea

Tel : +82-31-494-0001

Fax : +82-31-492-2041

Website : <http://kr.inktec.com/>**1.4. Emergency telephone number**

Emergency number : Centro Antiveleni (Poisons Centre)

: Dipartimento di Tossicologia Clinica Universita Cattolica del Sacro Cuore Roma

Emergency Telephone Number : +39 06 305 4343

SECTION 2 : Hazards identification**2.1. Classification of the substance or mixture**

Classification according to : Serious eye damage/eye irritation : Hazard category 2A

Regulation (EC) No 1272/2008 (CLP)

Classification according to : Xn; R22

Directive 1999/45/EC (DPD)

2.2. Label elements

Labeling according to

Regulation (EC) No 1272/2008 (CLP)

Hazard symbols :



GHS07

Signal word : Warning

Hazard statements : H319 : Causes serious eye irritation

Precautionary statements

Precautionary

: P264 : Wash ... thoroughly after handling.

: P280 : Wear protective gloves/protective clothing/eye protection/face protection.

Countermeasure

: P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

: P337+P313 : If eye irritation persists: Get medical advice/attention.

Disposal

: No information available.

: No information available.

2.3. Other hazards

Other hazards : No information available



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SECTION 3 : Composition/information on ingredients

3.1. Substance

Substances : No information available

3.2. Mixture

Ingredients	% By weight	CAS No.	EC No.	EU Classification				Note	
				67/548/ EEC (DSD)	CLP				
					Hazard class and category codes	Hazard statement codes	Pictogram/ Signal word codes		
Cyan Disperse Dye	1 < C < 4	Proprietary	Proprietary						
Glycerol	26 < C < 33	56-81-5	200-289-5						
DL-hexane-1,2-diol	1 < C < 5	6920-22-5	230-029-6	Xi, R36	Eye Irrit. 2	H319	GHS07		
Dispersion	1 < C < 5	Proprietary	Proprietary						
Water	57 < C < 67	7732-18-5	231-791-2						

* Substance is classified in terms of Regulation (EC) No. 1272/2008 Annex VI.

* Substance with workplace exposure limits.

* Substance is included in the Candidate List of Substances of Very High Concern for Authorisation.

SECTION 4 : First aid measures

4.1. Description of first aid measures

First-aid measures general

: If you feel unwell, seek medical advice.

First-aid measures after inhalation

: If breathing is difficult, give oxygen.

: Give artificial respiration if not breathing, and get immediate medical attention.

: If the person develops a symptom, move him to an area where fresh air is available.

: If the person develops a side effect, move him to an area free of contamination.

: Get medical attention.

First-aid measures after skin contact

: Get medical attention, if needed.

: Wash skin with soap and plenty of water for least 15 minutes

: Thoroughly clean and dry contaminated clothing and shoes before reuse.

: Remove contaminated clothing and shoes and wash skin with water and soap for at least 15 minutes.

: If skin is irritated or shows other symptoms, get medical attention.

: While lifting upper eyelid, flush eyes with plenty of water for at least 15 minutes and then get immediate medical attention.

: Get medical attention.

: Never make an unconscious person vomit or drink fluids.

: If vomiting occurs, keep head lower than hips to help prevent aspiration.

: If person is unconscious, turn head to side.

: If the person has swallowed a large quantity, let him get medical attention.



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4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2 and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

Other Information : Treat symptomatically.

SECTION 5 : Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

- : Powder fire extinguishing agent.
- : Spray stream.
- : Carbon dioxide
- : General foam extinguishing agent
- : Alcohol resistant foam extinguishing agent
- : Water spray.

Unsuitable extinguishing media

- : No data available.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards

- : There's a small chance of fire.
- : A mixture of vapor and air can be explosive at above a certain ignition point
- : Vapor or gas can spread instantly after being ignited from a distanced ignition point.
- : Vapor is heavier than air.
- : Halogen gas can be produced when it contacts metal
- : May develop irritating, corrosive, or toxic gases by fire.

Hazardous combustion products

- : Discharge of toxic smoke, like carbon oxide, sulfur compounds, acrolein and nitroxide.

5.3. Advice for firefighters

Precautionary measures fire

- : Exposure to fume/heat : keep upwind.
- : Exposure to fume/heat : have neighbourhood close doors and windows
- : Move containers from fire area if it can be done without risk.
- : Do not approach both ends of the tank
- : Withdraw immediately in case of rising sound from safety devices due to the fire or discoloration discoloration of tank.
- : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- : Cool container with flooding quantities of water until well after fire is out.
- : When there's a fire in shipping and unloading or storage area : Cool container with flooding quantities of water until well after fire is out by using unmanned hose holders or monitor nozzles.
- : If that is not possible, consider following preventive measures
- : Keep unnecessary people away, isolate hazard area and deny entry.

Firefighting instructions

- : And allow the fire to burn itself out.
- : Flood with fine water spray.
- : Do not scatter spilled material with high-pressure water streams

Protection during firefighting

- : Cool containers with water spray until well after the fire is out.
- : Stay upwind and keep out of low areas.
- : Dike for later disposal.
- : Use extinguishing agent appropriate for surrounding fire. : Flood with fine water spray.
- : The most effect measures would be removing fuel source and suffocating by blocking air supply.
- : Do not enter fire area without proper protective equipment, including respiratory protection.
- : Fire involving tank, rail, car, or tank truck : Evacuation for 0.8Km (1/2 mile) in all directions.
- : Shut off the source of the leakage before trying to extinguish fire.
- : Apply water from a protected location or from a safe distance.



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- : Avoid inhalation of material or combustion by-products.
- : Dike for later disposal.

SECTION 6 : Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment : Gloves, Protective clothing, see "Material-Handling" to select protective clothing
Emergency procedures : Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area
: Absorb with paper.
: Ventilate to eliminate all vapors, and burn papers.
: Eliminate all ignition sources.
: Absorb with dry earth, sand or other non-combustible material, and place in a container.
: Ventilate a closed area before entering.
: Use water spray to reduce vapors.
: Store in an area separated from water supply and sewer
: Check shipping information and included documents, and contact related agencies and companies to find detailed information on the material.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Keep away from heat, fire, flame and other sources of ignition
: Stop leak if without risk.
: Deny entry to an area within 25~50m radius from leak, and keep unnecessary people away
: Stop leak, if it can be done without risk to worker.
: Stay upwind.
: Place leaked material in an appropriate container to dispose.

6.2. Environmental precautions

Environmental precautions : Prevent entry to sewers and public waters. Store in an area separated from water supply and sewer.
: Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Cleaning Methods : Collect spillage. Store away from other materials.
: Place leaked material in an appropriate container to dispose.
: Absorb with dry earth, sand or other non-combustible material.
: Prevent entry into waterways, sewers, basements or confined areas.
: Stay upwind and keep out of low areas.

Containment : Dike for later disposal.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Do not touch a damaged container or spilled material without wearing proper protective gears.
: Notify the central government and local independent commission for discharge of amounts
: greater than or equal to the standard..
: Keep unnecessary people away, isolate hazard area and deny entry.

6.4. Reference to other sections

Other sections : See Section 7 for information on safe handling.
: See Section 8 for information on personal protection equipment.
: See Section 13 for disposal information.

SECTION 7 : Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking



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- : Do not press, cut, weld, solder, join, perforate, grind, or heat.
- : An empty container containing residues (liquid, steam) can be dangerous.
- : Store by closing a container.
- : Store in a closed container.
- : Do not inhale dust, steam, mist or gas.
- : Minimize development and accumulation of dust.
- : Use spark-proof tools and explosion-proof equipment.
- : Do not inhale or ingest.
- : Wash hands before eating.
- : Remove contaminated clothing and wash before reuse.
- : Perform proper ventilation.
- : Wash thoroughly after handling.
- : Use only in a well ventilated area.
- : Handle according to current laws and regulations.
- : Do not get in eyes, on skin and clothing.
- : Avoid flame, sparks, static electricity and other ignition sources.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- : Keep only in the original container in a cool, well ventilated place away from : Ignition sources, Incompatible materials. Keep container closed when not in use.
- : Keep container closed when not in use.

Incompatible products

- : Store and handle in accordance with all current regulations and standards.

Incompatible materials

- : Avoid contacting strong oxidizer.

Heat and ignition sources

- : Sources of ignition. Direct sunlight.

Prohibitions on mixed storage

- : Keep separated from incompatible substances

Storage area

- : Keep substance away from heat source

Special rules on packing

- : Keep away from sources of ignition.

Packaging materials

- : Keep substance away from oxidizing agents

- : Avoid contacting halogen or halogen compounds.

Storage area

- : Store in a cool, dry place.

7.3. Specific end use(s)

Specific end use(s) : No data available

SECTION 8 : Exposure controls/personal protection

8.1. Control parameters

Ingredients	CAS No.	Workplace exposure limit				Notation	
		Long-term exposure limit (8-hour TWA reference period)		Short-term exposure limit (15-minute reference period)			
		ppm	mg/m³	ppm	mg/m³		
-	-	-	-	-	-	-	

※ Workplace exposure limits for substances contained in the mixture

8.2. Exposure controls

Personal protective equipment

- : Avoid all unnecessary exposure.

Hand protection

- : Protective gloves are not required.



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Eye protection	: Wear appropriate chemical resistant gloves.
	: Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Respiratory protection	: Wear splash-proof eye goggles.
	: Wear splash resistant safety goggles with a face shield.
	: Consider warning properties before use.
	: None required under normal operating conditions.
	: None required under normal operating conditions.
	: Respiratory protection is ranked in order from minimum to maximum.
	: Wear respiratory protection that has received the Korea Occupational Safety and Health Agency's black "Safety" mark
Body protection	: Body protection clothing is not required
	: Wear appropriate chemical resistant clothing.
Environmental exposure controls	: Do not allow to enter sewers, surface and ground water
Other information	: Do not eat, drink or smoke during use.

SECTION 9 : Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Data	Properties	Data
Appearance	Cyan Liquid	Upper/lower flammability or explosive limits	No data available
Odor	Odorless or mild odor	Vapor pressure	No data available
Odor threshold	No data available	Vapor density	Greater than 1 (air=1)
pH	8.5 ~ 9.5	Relative density	1.06 at 68°F / 20°C
Melting point/Freezing point	Less than 32°F / 0°C	Solubility in water	Miscible
Boiling point	Greater than 212°F / 100°C	Partition coefficient n-octanol/water	No data available
Flash point	Greater than 230°F / 110°C	Auto ignition temperature	No data available
Evaporation rate	No data available	Decomposition temperature	No data available
Flammability (Solid/Gas)	No data available	Viscosity	3.7 ~ 4.3 cP

9.2. Other information

Other information : No data available

SECTION 10 : Stability and reactivity

10.1. Reactivity

Reactivity : No data available

10.2. Chemical stability

Chemical stability : Do not store for an extended period, or store or use in an area in direct contact with air and sun and above room temperature.
: May form explosive peroxides.
: Stable at room temperature and atmospheric pressure.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions : Stable at room temperature and atmospheric pressure.
: Polymerization will not occur.

10.4. Conditions to avoid

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.



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- : Keep separated from incompatible substances.
- : If container is exposed to heat, it may rupture or explode

10.5. Incompatible materials

Incompatible materials : acid, base, oxidizing agents, metallic oxide, peroxides, reducing agents, halogen, : inflammables, mineral salt.

10.6. Hazardous decomposition products

Hazardous decomposition products : Produce carbon oxide and sulfur compounds during thermal decomposition. : Variety of organic matters, cyanide compounds, ammonia, nitrogen oxide.

SECTION 11 : Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Ingredients	CAS No.	Oral	Eye	Inhalation
Glycerol	56-81-5	LD50 12600 mg/kg Rat	No data available	No data available
DL-hexane-1,2-diol	6920-22-5	LD50 6166 mg/kg Rat	No data available	No data available

Skin corrosion/irritation : Skin rabbit, according to skin Irritation test.

Serious eye damage/irritation : According to rabbit tests, it can develop corneal opacity with pain to human, . : but it was recovered in a few days.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (STOT-single exposure) : It develops lethargy, dizziness, dyspnea, metabolic acidosis, hematuria, or liver disease : When it is inhaled, it irritates nose and neck

: It develops repetitive respiratory irritation

: According to animal tests, inhalation can cause toxic effects on blood.

Aspiration hazard : Not classified

Potential Adverse human health effects and : Not classified

Symptoms

SECTION 12 : Ecological information

12.1. Toxicity

Toxicity : No data available

12.2. Persistence and degradability

Persistence and degradability : No data available

12.3. Bioaccumulative potential

Bioaccumulative potential : No data available

12.4. Mobility in soil

Mobility in soil : No data available

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment : No data available



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12.6. Other adverse effects

Other adverse effects : No data available

SECTION 13 : Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations
: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation,
: Please dispose by using one of the following methods
: 1. Neutralize, hydrolyze, oxidize, or restore it.
: 2. Incinerate or melt it in high temperature
: 3. Solidify it.
Ecology - waste materials : Avoid release to the environment.
: Consider all cautions specified in all applicable regulations of Waste Management Law

SECTION 14 : Transport information

14.1. UN number

UN number : No data available

14.2. UN proper shipping name

UN proper shipping name : No data available

14.3. Transport hazard class(es)

Transport hazard class(es) : No data available

14.4. Packing group

Packing group : No data available

14.5. Environmental hazards

Environmental hazards : No data available

14.6. Special precautions for user

Other adverse effects : No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to Annex II : No data available
of MARPOL 73/78 and the IBC Code

SECTION 15 : Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

Classification according to

Regulation (EC) No 1272/2008 (CLP)

: The substances in the mixture are not subject to Authorisation under Title VII or
Restrictions under Title VIII of Regulation (EC) No. 1907/2006.
: COMMISSION REGULATION (EU) No 830/2015 of 28 May 2015
amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on
the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
: Not classified
: Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as toxic to
reproduction category 1A or 1B (Table 3.1) or toxic to reproduction category 1 or 2 (Table 3.2)
and listed
Carcinogen category 1A (Table 3.1)/ carcinogen category 1 (Table 3.2) listed in Appendix 1
Carcinogen category 1B (Table 3.1)/ carcinogen category 2 (Table 3.2) listed in Appendix 2
: Without prejudice to the implementation of other Community provisions relating to the classification,
packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the

Candidate List of Substances of Very High
Concern for Authorisation (Annex XVII)



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market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows : 'Restricted to professional users'.

Authorisation list (Annex XIV)

: Not classified

Classification according to Directive 1999/45/EC (DPD)

: Not classified

National Regulations

Korea

The Korea Industrial Safety and Health Act :

Ingredients	CAS No.	Regulations
Glycerol	56-81-5	Exposure limits for chemical and biological materials

The Enforcement Decree of : No data available

Toxic Chemicals Control Act

The Safety Control of Dangerous Substances Act :

Ingredients	CAS No.	Regulations
Glycerol	56-81-5	Class 4 Group 3 petroleum, soluble 4000ℓ
DL-hexane-1,2-diol	6920-22-5	Class 4 Group 3 petroleum, soluble 4000ℓ

The Waste Management Law

Ingredients	CAS No.	Regulations
Glycerol	56-81-5	Authorized waste

Other regulations : No data available

15.2. Chemical safety assessment

Chemical safety assessment : Chemical safety assessment has not been carried out for this mixture

SECTION 16 : Other information

Data of issue

: 29.May. 2009

Latest Revision and Revision data

: [Revision] 1.3 [Date] 12. April, 2019

Instructions for the training

: Product handling instruction shall be included into the educational system about the safety work (Initial training, training at the workplace, repeated training) according to specific conditions at the workplace

Recommended restrictions on use

: Mixture should not be used for any other purpose than for which is appointed (point 1.2).

(i.e. non-statutory recommendations by supplier)

: Because of the fact that specific conditions of use of mixture are out of supplier's control, It is responsibility of the user to adjust the prescribed warnings to local laws and regulations. Safety information describes the product in terms of safety and it cannot be considered as technical information about product

Sources of key data used to compile

: SDS was elaborated according to requirements set in Annex II of Regulation (EC) No 1907/2006 of the European Parliament and of the Council. SDS was prepared using data from the producer.

the Safety Data Sheet

: Purpose of this SDS is to provide relevant information for users of product to ensure proper handling and control of risks/hazards.

Purpose of SDS

: National Fire Protection Association

Classification according to

NFPA Rating

Ingredients	CAS No.	NFPA Classification	NFPA Classification
Glycerol	56-81-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

Ingredients	CAS No.	NFPA Classification	NFPA Classification
DL-hexane-1,2-diol	6920-22-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	2 (Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g. diesel fuel , paper, sulfur) and multiple finely divided suspended solids that do not require heating before ignition can occur.)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

SECTION 1 : Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product Name : DTI03-01LM

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Water-based ink for inkjet printer.

Uses advised against : Do not use for the other application. Restricted to professional users

1.3. Details of the supplier of the safety data sheet

Company Name : InkTec Co.,Ltd.

Address : #108, Neungan-ro, Danwon-gu, Ansan-city, Gyeonggi-do, 425-839, Korea

Tel : +82-31-494-0001

Fax : +82-31-492-2041

Website : <http://kr.inktec.com/>**1.4. Emergency telephone number**

Emergency number : Centro Antiveleni (Poisons Centre)

: Dipartimento di Tossicologia Clinica Universita Cattolica del Sacro Cuore Roma

Emergency Telephone Number : +39 06 305 4343

SECTION 2 : Hazards identification**2.1. Classification of the substance or mixture**

Classification according to : Acute toxicity,oral : Hazard category 4

Regulation (EC) No 1272/2008 (CLP) : Serious eye damage/eye irritation : Hazard category 2A

Classification according to : Xn; R22 Xi; R36

Directive 1999/45/EC (DPD)

2.2. Label elements

Labeling according to

Regulation (EC) No 1272/2008 (CLP)

Hazard symbols :

GHS07

Signal word : Warning

Hazard statements : H302 : Harmful if swallowed

H319 : Causes serious eye irritation

Precautionary statements

Precautionary : P264 : Wash ... thoroughly after handling.

: P270 : Do no eat, drink or smoke when using this product.

: P280 : Wear protective gloves/protective clothing/eye protection/face protection.

: P301+P312 : IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

: P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes.

: Remove contact lenses, if present and easy to do. Continue rinsing.

: P312 : Call a POISON CENTER or doctor/physician if you feel unwell.

: P330 : Rinse mouth.

: P337+P313 : If eye irritation persists: Get medical advice/attention.

: No information available.

: P501 : Dispose of contents/container to ...
..in accordance with local/regional/national/international regulation(to be specified).



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2.3. Other hazards

Other hazards

: No information available

SECTION 3 : Composition/information on ingredients

3.1. Substance

Substances

: No information available

3.2. Mixture

Ingredients	% By weight	CAS No.	EC No.	EU Classification				Note	
				67/548/ EEC (DSD)	CLP				
					Hazard class and category codes	Hazard statement codes	Pictogram/ Signal word codes		
Magenta Disperse Dye	1 < C < 7	Proprietary	Proprietary						
Ethane-1,2-diol	10 < C < 20	107-21-1	203-473-3	Xn; R22	Acute Tox. 4*	H302	GHS07		
D-Sorbitol	10 < C < 20	50-70-4	200-061-5						
DL-hexane-1,2-diol	1 < C < 5	6920-22-5	230-029-6	Xi, R36	Eye Irrit. 2	H319	GHS07		
Water	58 < C < 68	7732-18-5	231-791-2						

* Substance is classified in terms of Regulation (EC) No. 1272/2008 Annex VI.

* Substance with workplace exposure limits.

* Substance is included in the Candidate List of Substances of Very High Concern for Authorisation.

SECTION 4 : First aid measures

4.1. Description of first aid measures

First-aid measures general

: If you feel unwell, seek medical advice.

First-aid measures after inhalation

: If breathing is difficult, give oxygen.

: Give artificial respiration if not breathing, and get immediate medical attention.

: If the person develops a symptom, move him to an area where fresh air is available.

: If the person develops a side effect, move him to an area free of contamination.

: Get medical attention.

First-aid measures after skin contact

: Get medical attention, if needed.

: Wash skin with soap and plenty of water for least 15 minutes

: Thoroughly clean and dry contaminated clothing and shoes before reuse.

: Remove contaminated clothing and shoes and wash skin with water and soap for at least 15 minutes.

: If skin is irritated or shows other symptoms, get medical attention.

: While lifting upper eyelid, flush eyes with plenty of water for at least 15 minutes and then get immediate medical attention.

: Get medical attention.

: Never make an unconscious person vomit or drink fluids.

: If vomiting occurs, keep head lower than hips to help prevent aspiration.

: If person is unconscious, turn head to side.

: If the person has swallowed a large quantity, let him get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2 and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

Other Information

: Treat symptomatically.

SECTION 5 : Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media

: Powder fire extinguishing agent.
: Spray stream.
: Carbon dioxide
: General foam extinguishing agent
: Alcohol resistant foam extinguishing agent
: Water spray.
: No data available.

Unsuitable extinguishing media

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards

: There's a small chance of fire.
: A mixture of vapor and air can be explosive at above a certain ignition point
: Vapor or gas can spread instantly after being ignited from a distanced ignition point.
: Vapor is heavier than air.
: Halogen gas can be produced when it contacts metal
: May develop irritating, corrosive, or toxic gases by fire.
: Discharge of toxic smoke, like carbon oxide, sulfur compounds, acrolein and nitroxide.

Hazardous combustion products

5.3. Advice for firefighters

Precautionary measures fire

: Exposure to fume/heat : keep upwind.
: Exposure to fume/heat : have neighbourhood close doors and windows
: Move containers from fire area if it can be done without risk.
: Do not approach both ends of the tank
: Withdraw immediately in case of rising sound from safety devices due to the fire or discoloration discoloration of tank.
: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
: Cool container with flooding quantities of water until well after fire is out.
: When there's a fire in shipping and unloading or storage area : Cool container with flooding quantities of water until well after fire is out by using unmanned hose holders or monitor nozzles.
: If that is not possible, consider following preventive measures
: Keep unnecessary people away, isolate hazard area and deny entry.
: And allow the fire to burn itself out.
: Flood with fine water spray.
: Do not scatter spilled material with high-pressure water streams

Firefighting instructions

: Cool containers with water spray until well after the fire is out.
: Stay upwind and keep out of low areas.
: Dike for later disposal.
: Use extinguishing agent appropriate for surrounding fire. : Flood with fine water spray.
: The most effective measures would be removing fuel source and suffocating by blocking air supply.
: Do not enter fire area without proper protective equipment, including respiratory protection.
: Fire involving tank, rail, car, or tank truck : Evacuation for 0.8Km (1/2 mile) in all directions.
: Shut off the source of the leakage before trying to extinguish fire.

Protection during firefighting



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- : Apply water from a protected location or from a safe distance.
- : Avoid inhalation of material or combustion by-products.
- : Dike for later disposal.

SECTION 6 : Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment : Gloves, Protective clothing, see "Material-Handling" to select protective clothing
Emergency procedures : Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area
: Absorb with paper.
: Ventilate to eliminate all vapors, and burn papers.
: Eliminate all ignition sources.
: Absorb with dry earth, sand or other non-combustible material, and place in a container.
: Ventilate a closed area before entering.
: Use water spray to reduce vapors.
: Store in an area separated from water supply and sewer
: Check shipping information and included documents, and contact related agencies and companies to find detailed information on the material.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Keep away from heat, fire, flame and other sources of ignition
: Stop leak if without risk.
: Deny entry to an area within 25-50m radius from leak, and keep unnecessary people away
: Stop leak, if it can be done without risk to worker.
: Stay upwind.
: Place leaked material in an appropriate container to dispose.

6.2. Environmental precautions

Environmental precautions : Prevent entry to sewers and public waters. Store in an area separated from water supply and sewer.
: Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Cleaning Methods : Collect spillage. Store away from other materials.
: Place leaked material in an appropriate container to dispose.
: Absorb with dry earth, sand or other non-combustible material.
: Prevent entry into waterways, sewers, basements or confined areas.
: Stay upwind and keep out of low areas.

Containment : Dike for later disposal.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Do not touch a damaged container or spilled material without wearing proper protective gears.
: Notify the central government and local independent commission for discharge of amounts
: greater than or equal to the standard..
: Keep unnecessary people away, isolate hazard area and deny entry.

6.4. Reference to other sections

Other sections : See Section 7 for information on safe handling.
: See Section 8 for information on personal protection equipment.
: See Section 13 for disposal information.

SECTION 7 : Handling and storage



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7.1. Precautions for safe handling

Precautions for safe handling

- : Wash hands and other exposed areas with mild soap and water before eating, drinking
- : Do not press, cut, weld, solder, join, perforate, grind, or heat.
- : An empty container containing residues (liquid, steam) can be dangerous.
- : Store by closing a container.
- : Store in a closed container.
- : Do not inhale dust, steam, mist or gas.
- : Minimize development and accumulation of dust.
- : Use spark-proof tools and explosion-proof equipment.
- : Do not inhale or ingest.
- : Wash hands before eating.
- : Remove contaminated clothing and wash before reuse.
- : Perform proper ventilation.
- : Wash thoroughly after handling.
- : Use only in a well ventilated area.
- : Handle according to current laws and regulations.
- : Do not get in eyes, on skin and clothing.
- : Avoid flame, sparks, static electricity and other ignition sources.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- : Keep only in the original container in a cool, well ventilated place away from : Ignition sources, Incompatible materials. Keep container closed when not in use.

: Keep container closed when not in use.

: Store and handle in accordance with all current regulations and standards.

: Avoid contacting strong oxidizer.

: Sources of ignition. Direct sunlight.

: Keep separated from incompatible substances

: Keep substance away from heat source

: Keep away from sources of ignition.

Incompatible products

Incompatible materials

Heat and ignition sources

Prohibitions on mixed storage

Storage area

Special rules on packing

Packaging materials

: Keep substance away from oxidizing agents

: Avoid contacting halogen or halogen compounds.

: Store in a cool, dry place.

: Store at ambient temperature

: Special requirements closing, clean, correctly labelled, meet the legal requirements.

: Secure fragile packagings in solid container.

: Suitable material : No data available

: Material to avoid : No data available

7.3. Specific end use(s)

Specific end use(s)

: No data available

SECTION 8 : Exposure controls/personal protection

8.1. Control parameters

Ingredients	CAS No.	Workplace exposure limit				Notation	
		Long-term exposure limit (8-hour TWA reference period)		Short-term exposure limit (15-minute reference period)			
		ppm	mg/m ³	ppm	mg/m ³		
-	-	-	-	-	-	-	

※ Workplace exposure limits for substances contained in the mixture



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8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Protective gloves are not required.
	: Wear appropriate chemical resistant gloves.
Eye protection	: Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
	: Wear splash-proof eye goggles.
	: Wear splash resistant safety goggles with a face shield.
Respiratory protection	: Consider warning properties before use.
	: None required under normal operating conditions.
	: None required under normal operating conditions.
	: Respiratory protection is ranked in order from minimum to maximum.
	: Wear respiratory protection that has received the Korea Occupational Safety and Health Agency's black "Safety" mark
Body protection	: Body protection clothing is not required
	: Wear appropriate chemical resistant clothing.
Environmental exposure controls	: Do not allow to enter sewers, surface and ground water
Other information	: Do not eat, drink or smoke during use.

SECTION 9 : Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Data	Properties	Data
Appearance	Magenta Liquid	Upper/lower flammability or explosive limits	No data available
Odor	Odorless or mild odor	Vapor pressure	No data available
Odor threshold	No data available	Vapor density	Greater than 1 (air=1)
pH	9.5 ~ 10.5	Relative density	1.06 at 68°F / 20°C
Melting point/Freezing point	Less than 32°F / 0°C	Solubility in water	Miscible
Boiling point	Greater than 212°F / 100°C	Partition coefficient n-octanol/water	No data available
Flash point	Greater than 230°F / 110°C	Auto ignition temperature	No data available
Evaporation rate	No data available	Decomposition temperature	No data available
Flammability (Solid/Gas)	No data available	Viscosity	2.9 ~ 3.5 cP

9.2. Other information

Other information	: No data available
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SECTION 10 : Stability and reactivity

10.1. Reactivity

Reactivity	: No data available
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10.2. Chemical stability

Chemical stability	: Do not store for an extended period, or store or use in an area in direct contact with air and sun and above room temperature.
	: May form explosive peroxides.
	: Stable at room temperature and atmospheric pressure.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	: Stable at room temperature and atmospheric pressure.
	: Polymerization will not occur.



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10.4. Conditions to avoid

Conditions to avoid

- : Avoid heat, flames, sparks and other sources of ignition.
- : Keep separated from incompatible substances.
- : If container is exposed to heat, it may rupture or explode

10.5. Incompatible materials

Incompatible materials

- : acid, base, oxidizing agents, metallic oxide, peroxides, reducing agents, halogen,
- : inflammables, mineral salt.

10.6. Hazardous decomposition products

Hazardous decomposition products

- : Produce carbon oxide and sulfur compounds during thermal decomposition.
- : Variety of organic matters, cyanide compounds, ammonia, nitrogen oxide.

SECTION 11 : Toxicological information

11.1. Information on toxicological effects

Acute toxicity

: Not classified

Ingredients	CAS No.	Oral	Eye	Inhalation
Ethane-1,2-diol	107-21-1	LD50 4700 mg/kg Rat	No data available	No data available
D-Sorbitol	50-70-4	LD50 15900 mg/kg Rat	No data available	No data available
DL-hexane-1,2-diol	6920-22-5	LD50 6166 mg/kg Rat	No data available	No data available

Skin corrosion/irritation

: Skin rabbit, according to skin Irritation test.

Serious eye damage/irritation

: According to rabbit tests, it can develop corneal opacity with pain to human, .
: but it was recovered in a few days.

Respiratory or skin sensitization

: Not classified

Germ cell mutagenicity

: Not classified

Carcinogenicity

: Not classified

Reproductive toxicity

: Not classified

Specific target organ toxicity
(STOT-single exposure)

: It develops lethargy, dizziness, dyspnea, metabolic acidosis, hematuria, or liver disease
: When it is inhaled, it irritates nose and neck
: It develops repetitive respiratory irritation

Specific target organ toxicity
(STOT-repeated exposure)

: According to animal tests, inhalation can cause toxic effects on blood.

Aspiration hazard

: Not classified

Potential Adverse human health effects and

: Not classified

Symptoms

SECTION 12 : Ecological information

12.1. Toxicity

Toxicity

: No data available

12.2. Persistence and degradability

Persistence and degradability

: No data available

12.3. Bioaccumulative potential

Bioaccumulative potential

: No data available



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12.4. Mobility in soil

Mobility in soil : No data available

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment : No data available

12.6. Other adverse effects

Other adverse effects : No data available

SECTION 13 : Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations
: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation,
: Please dispose by using one of the following methods
: 1. Neutralize, hydrolyze, oxidize, or restore it.
: 2. Incinerate or melt it in high temperature
: 3. Solidify it.
Ecology - waste materials : Avoid release to the environment.
: Consider all cautions specified in all applicable regulations of Waste Management Law

SECTION 14 : Transport information

14.1. UN number

UN number : No data available

14.2. UN proper shipping name

UN proper shipping name : No data available

14.3. Transport hazard class(es)

Transport hazard class(es) : No data available

14.4. Packing group

Packing group : No data available

14.5. Environmental hazards

Environmental hazards : No data available

14.6. Special precautions for user

Other adverse effects : No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : No data available

SECTION 15 : Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

Classification according to Regulation (EC) No 1272/2008 (CLP)

: The substances in the mixture are not subject to Authorisation under Title VII or Restrictions under Title VIII of Regulation (EC) No. 1907/2006.
: COMMISSION REGULATION (EU) No 830/2015 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
: Not classified
: Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as toxic to reproduction category 1A or 1B (Table 3.1) or toxic to reproduction category 1 or 2 (Table 3.2)

Candidate List of Substances of Very High Concern for Authorisation (Annex XVII)



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and listed

Carcinogen category 1A (Table 3.1)/ carcinogen category 1 (Table 3.2) listed in Appendix 1

Carcinogen category 1B (Table 3.1)/ carcinogen category 2 (Table 3.2) listed in Appendix 2

: Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows : 'Restricted to professional users'.

Authorisation list (Annex XIV)

: Not classified

Classification according to Directive 1999/45/EC (DPD)

: Not classified

National Regulations

Korea

The Korea Industrial Safety and Health Act :

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Work environment measuring materials Special health diagnosis material (Inspection cycle: 12 months) Exposure limits for chemical and biological materials

The Enforcement Decree of

: No data available

Toxic Chemicals Control Act

The Safety Control of Dangerous Substances Act :

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Class 4 Group 3 petroleum, soluble 4000l
DL-hexane-1,2-diol	6920-22-5	Class 4 Group 3 petroleum, soluble 4000l

The Waste Management Law

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Authorized waste

Other regulations

: No data available

15.2. Chemical safety assessment

Chemical safety assessment

: Chemical safety assessment has not been carried out for this mixture

SECTION 16 : Other information

Data of issue

: 29.May. 2009

Latest Revision and Revision data

: [Revision] 1.3 [Date] 12. April, 2019

Instructions for the training

: Product handling instruction shall be included into the educational system about the safety work (Initial training, training at the workplace, repeated training) according to specific conditions at the workplace

Recommended restrictions on use

: Mixture should not be used for any other purpose than for which is appointed (point 1.2).

(i.e. non-statutory recommendations by supplier)

: Because of the fact that specific conditions of use of mixture are out of supplier's control, It is responsibility of the user to adjust the prescribed warnings to local laws and regulations. Safety information describes the product in terms of safety and it cannot be considered as technical information about product

Sources of key data used to compile

: SDS was elaborated according to requirements set in Annex II of Regulation (EC) No 1907/2006 of the European Parliament and of the Council. SDS was prepared using data from the producer.

Purpose of SDS

: Purpose of this SDS is to provide relevant information for users of product to ensure proper handling and control of risks/hazards.

Classification according to

: National Fire Protection Association

NFPA Rating

Ingredients	CAS No.	NFPA Classification	NFPA Classification
Ethane-1,2-diol	107-21-1	NFPA 704 Diamond	
		Health hazards	2 (Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

Ingredients	CAS No.	NFPA Classification	NFPA Classification
D-Sorbitol	50-70-4	NFPA 704 Diamond	
		Health hazards	1 (Exposure would cause irritation with only minor residual injury)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

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Ingredients	CAS No.	NFPA Classification	NFPA Classification
DL-hexane-1,2-diol	6920-22-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	2 (Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g. diesel fuel , paper, sulfur) and multiple finely divided suspended solids that do not require heating before ignition can occur.)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

SECTION 1 : Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product Name : DTI04-01LY

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Water-based ink for inkjet printer.

Uses advised against : Do not use for the other application. Restricted to professional users

1.3. Details of the supplier of the safety data sheet

Company Name : InkTec Co.,Ltd.

Address : #108, Neungan-ro, Danwon-gu, Ansan-city, Gyeonggi-do, 425-839, Korea

Tel : +82-31-494-0001

Fax : +82-31-492-2041

Website : <http://kr.inktec.com/>**1.4. Emergency telephone number**

Emergency number : Centro Antiveleni (Poisons Centre)

: Dipartimento di Tossicologia Clinica Universita Cattolica del Sacro Cuore Roma

Emergency Telephone Number : +39 06 305 4343

SECTION 2 : Hazards identification**2.1. Classification of the substance or mixture**

Classification according to : Acute toxicity,oral : Hazard category 4

Regulation (EC) No 1272/2008 (CLP) : Serious eye damage/eye irritation : Hazard category 2A

Classification according to : Xn; R22 Xi; R36

Directive 1999/45/EC (DPD)

2.2. Label elements

Labeling according to

Regulation (EC) No 1272/2008 (CLP)

Hazard symbols :  GHS07

Signal word : Warning

Hazard statements : H302 : Harmful if swallowed

H319 : Causes serious eye irritation

Precautionary statements

Precautionary : P264 : Wash ... thoroughly after handling.

: P270 : Do no eat, drink or smoke when using this product.

: P280 : Wear protective gloves/protective clothing/eye protection/face protection.

Countermeasure : P301+P312 : IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

: P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes.

: Remove contact lenses, if present and easy to do. Continue rinsing.

: P312 : Call a POISON CENTER or doctor/physician if you feel unwell.

: P330 : Rinse mouth.

: P337+P313 : If eye irritation persists: Get medical advice/attention.

: No information available.

Storage : P501 : Dispose of contents/container to ...

..in accordance with local/regional/national/international regulation(to be specified).



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2.3. Other hazards

Other hazards

: No information available

SECTION 3 : Composition/information on ingredients

3.1. Substance

Substances

: No information available

3.2. Mixture

Ingredients	% By weight	CAS No.	EC No.	EU Classification				Note	
				67/548/ EEC (DSD)	CLP				
					Hazard class and category codes	Hazard statement codes	Pictogram/ Signal word codes		
Yellow Disperse Dye	1 < C < 5	Proprietary	Proprietary						
Ethane-1,2-diol	17 < C < 22	107-21-1	203-473-3	Xn; R22	Acute Tox. 4*	H302	GHS07		
Glycerol	8 < C < 14	56-81-5	200-289-5						
DL-hexane-1,2-diol	1 < C < 5	6920-22-5	230-029-6	Xi, R36	Eye Irrit. 2	H319	GHS07		
Water	60 < C < 70	7732-18-5	231-791-2						

* Substance is classified in terms of Regulation (EC) No. 1272/2008 Annex VI.

* Substance with workplace exposure limits.

* Substance is included in the Candidate List of Substances of Very High Concern for Authorisation.

SECTION 4 : First aid measures

4.1. Description of first aid measures

First-aid measures general

: If you feel unwell, seek medical advice.

First-aid measures after inhalation

: If breathing is difficult, give oxygen.

: Give artificial respiration if not breathing, and get immediate medical attention.

: If the person develops a symptom, move him to an area where fresh air is available.

: If the person develops a side effect, move him to an area free of contamination.

: Get medical attention.

First-aid measures after skin contact

: Get medical attention, if needed.

: Wash skin with soap and plenty of water for least 15 minutes

: Thoroughly clean and dry contaminated clothing and shoes before reuse.

: Remove contaminated clothing and shoes and wash skin with water and soap for at least 15 minutes.

: If skin is irritated or shows other symptoms, get medical attention.

: While lifting upper eyelid, flush eyes with plenty of water for at least 15 minutes and then get immediate medical attention.

: Get medical attention.

: Never make an unconscious person vomit or drink fluids.

: If vomiting occurs, keep head lower than hips to help prevent aspiration.

: If person is unconscious, turn head to side.

: If the person has swallowed a large quantity, let him get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2 and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

Other Information

: Treat symptomatically.

SECTION 5 : Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media

: Powder fire extinguishing agent.
: Spray stream.
: Carbon dioxide
: General foam extinguishing agent
: Alcohol resistant foam extinguishing agent
: Water spray.
: No data available.

Unsuitable extinguishing media

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards

: There's a small chance of fire.
: A mixture of vapor and air can be explosive at above a certain ignition point
: Vapor or gas can spread instantly after being ignited from a distanced ignition point.
: Vapor is heavier than air.
: Halogen gas can be produced when it contacts metal
: May develop irritating, corrosive, or toxic gases by fire.
: Discharge of toxic smoke, like carbon oxide, sulfur compounds, acrolein and nitroxide.

Hazardous combustion products

5.3. Advice for firefighters

Precautionary measures fire

: Exposure to fume/heat : keep upwind.
: Exposure to fume/heat : have neighbourhood close doors and windows
: Move containers from fire area if it can be done without risk.
: Do not approach both ends of the tank
: Withdraw immediately in case of rising sound from safety devices due to the fire or discoloration
: discoloration of tank.
: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any
: chemical fire. Prevent fire-fighting water from entering environment.
: Cool container with flooding quantities of water until well after fire is out.
: When there's a fire in shipping and unloading or storage area : Cool container with flooding
: quantities of water until well after fire is out by using unmanned hose holders or monitor nozzles.
: If that is not possible, consider following preventive measures
: Keep unnecessary people away, isolate hazard area and deny entry.
: And allow the fire to burn itself out.
: Flood with fine water spray.
: Do not scatter spilled material with high-pressure water streams

Firefighting instructions

: Cool containers with water spray until well after the fire is out.
: Stay upwind and keep out of low areas.
: Dike for later disposal.
: Use extinguishing agent appropriate for surrounding fire. : Flood with fine water spray.
: The most effective measures would be removing fuel source and suffocating by blocking air supply.
: Do not enter fire area without proper protective equipment, including respiratory protection.
: Fire involving tank, rail, car, or tank truck : Evacuation for 0.8Km (1/2 mile) in all directions.
: Shut off the source of the leakage before trying to extinguish fire.

Protection during firefighting



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- : Apply water from a protected location or from a safe distance.
- : Avoid inhalation of material or combustion by-products.
- : Dike for later disposal.

SECTION 6 : Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment : Gloves, Protective clothing, see "Material-Handling" to select protective clothing
Emergency procedures : Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area
: Absorb with paper.
: Ventilate to eliminate all vapors, and burn papers.
: Eliminate all ignition sources.
: Absorb with dry earth, sand or other non-combustible material, and place in a container.
: Ventilate a closed area before entering.
: Use water spray to reduce vapors.
: Store in an area separated from water supply and sewer
: Check shipping information and included documents, and contact related agencies and companies to find detailed information on the material.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Keep away from heat, fire, flame and other sources of ignition
: Stop leak if without risk.
: Deny entry to an area within 25-50m radius from leak, and keep unnecessary people away
: Stop leak, if it can be done without risk to worker.
: Stay upwind.
: Place leaked material in an appropriate container to dispose.

6.2. Environmental precautions

Environmental precautions : Prevent entry to sewers and public waters. Store in an area separated from water supply and sewer.
: Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Cleaning Methods : Collect spillage. Store away from other materials.
: Place leaked material in an appropriate container to dispose.
: Absorb with dry earth, sand or other non-combustible material.
: Prevent entry into waterways, sewers, basements or confined areas.
: Stay upwind and keep out of low areas.

Containment : Dike for later disposal.
: Keep unnecessary people away, isolate hazard area and deny entry.
: Do not touch a damaged container or spilled material without wearing proper protective gears.
: Notify the central government and local independent commission for discharge of amounts
: greater than or equal to the standard..
: Keep unnecessary people away, isolate hazard area and deny entry.

6.4. Reference to other sections

Other sections : See Section 7 for information on safe handling.
: See Section 8 for information on personal protection equipment.
: See Section 13 for disposal information.

SECTION 7 : Handling and storage



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7.1. Precautions for safe handling

Precautions for safe handling

- : Wash hands and other exposed areas with mild soap and water before eating, drinking
- : Do not press, cut, weld, solder, join, perforate, grind, or heat.
- : An empty container containing residues (liquid, steam) can be dangerous.
- : Store by closing a container.
- : Store in a closed container.
- : Do not inhale dust, steam, mist or gas.
- : Minimize development and accumulation of dust.
- : Use spark-proof tools and explosion-proof equipment.
- : Do not inhale or ingest.
- : Wash hands before eating.
- : Remove contaminated clothing and wash before reuse.
- : Perform proper ventilation.
- : Wash thoroughly after handling.
- : Use only in a well ventilated area.
- : Handle according to current laws and regulations.
- : Do not get in eyes, on skin and clothing.
- : Avoid flame, sparks, static electricity and other ignition sources.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- : Keep only in the original container in a cool, well ventilated place away from : Ignition sources, Incompatible materials. Keep container closed when not in use.

: Keep container closed when not in use.

: Store and handle in accordance with all current regulations and standards.

: Avoid contacting strong oxidizer.

: Sources of ignition. Direct sunlight.

: Keep separated from incompatible substances

: Keep substance away from heat source

: Keep away from sources of ignition.

Incompatible products

Incompatible materials

Heat and ignition sources

Prohibitions on mixed storage

Storage area

Special rules on packing

Packaging materials

: Keep substance away from oxidizing agents

: Avoid contacting halogen or halogen compounds.

: Store in a cool, dry place.

: Store at ambient temperature

: Special requirements closing, clean, correctly labelled, meet the legal requirements.

: Secure fragile packagings in solid container.

: Suitable material : No data available

: Material to avoid : No data available

7.3. Specific end use(s)

Specific end use(s)

: No data available

SECTION 8 : Exposure controls/personal protection

8.1. Control parameters

Ingredients	CAS No.	Workplace exposure limit				Notation	
		Long-term exposure limit (8-hour TWA reference period)		Short-term exposure limit (15-minute reference period)			
		ppm	mg/m ³	ppm	mg/m ³		
-	-	-	-	-	-	-	

※ Workplace exposure limits for substances contained in the mixture



DTI04-01LY

Safety Data Sheet

In accordance with Regulation (EC) No. 1907/2006 of the European Parliament and the Council (REACH) and Commission Regulation (EU) No. 830/2015

Date of issue : 05/29/2009

Revision date : 04/02/2022

Revision No : 1.3

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8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Protective gloves are not required.
	: Wear appropriate chemical resistant gloves.
Eye protection	: Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
	: Wear splash-proof eye goggles.
	: Wear splash resistant safety goggles with a face shield.
Respiratory protection	: Consider warning properties before use.
	: None required under normal operating conditions.
	: None required under normal operating conditions.
	: Respiratory protection is ranked in order from minimum to maximum.
	: Wear respiratory protection that has received the Korea Occupational Safety and Health Agency's black "Safety" mark
Body protection	: Body protection clothing is not required
	: Wear appropriate chemical resistant clothing.
Environmental exposure controls	: Do not allow to enter sewers, surface and ground water
Other information	: Do not eat, drink or smoke during use.

SECTION 9 : Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Data	Properties	Data
Appearance	Yellow Liquid	Upper/lower flammability or explosive limits	No data available
Odor	Odorless or mild odor	Vapor pressure	No data available
Odor threshold	No data available	Vapor density	Greater than 1 (air=1)
pH	8.5 ~ 9.5	Relative density	1.06 at 68°F / 20°C
Melting point/Freezing point	Less than 32°F / 0°C	Solubility in water	Miscible
Boiling point	Greater than 212°F / 100°C	Partition coefficient n-octanol/water	No data available
Flash point	Greater than 230°F / 110°C	Auto ignition temperature	No data available
Evaporation rate	No data available	Decomposition temperature	No data available
Flammability (Solid/Gas)	No data available	Viscosity	2.8 ~ 3.4 cP

9.2. Other information

Other information	: No data available
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SECTION 10 : Stability and reactivity

10.1. Reactivity

Reactivity	: No data available
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10.2. Chemical stability

Chemical stability	: Do not store for an extended period, or store or use in an area in direct contact with air and sun and above room temperature.
	: May form explosive peroxides.
	: Stable at room temperature and atmospheric pressure.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	: Stable at room temperature and atmospheric pressure.
	: Polymerization will not occur.



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10.4. Conditions to avoid

Conditions to avoid

- : Avoid heat, flames, sparks and other sources of ignition.
- : Keep separated from incompatible substances.
- : If container is exposed to heat, it may rupture or explode

10.5. Incompatible materials

Incompatible materials

- : acid, base, oxidizing agents, metallic oxide, peroxides, reducing agents, halogen,
- : inflammables, mineral salt.

10.6. Hazardous decomposition products

Hazardous decomposition products

- : Produce carbon oxide and sulfur compounds during thermal decomposition.
- : Variety of organic matters, cyanide compounds, ammonia, nitrogen oxide.

SECTION 11 : Toxicological information

11.1. Information on toxicological effects

Acute toxicity

: Not classified

Ingredients	CAS No.	Oral	Eye	Inhalation
Ethane-1,2-diol	107-21-1	LD50 4700 mg/kg Rat	No data available	No data available
Glycerol	56-81-5	LD50 12600 mg/kg Rat	No data available	No data available
DL-hexane-1,2-diol	6920-22-5	LD50 6166 mg/kg Rat	No data available	No data available

Skin corrosion/irritation

: Skin rabbit, according to skin Irritation test.

Serious eye damage/irritation

: According to rabbit tests, it can develop corneal opacity with pain to human, .
: but it was recovered in a few days.

Respiratory or skin sensitization

: Not classified

Germ cell mutagenicity

: Not classified

Carcinogenicity

: Not classified

Reproductive toxicity

: Not classified

Specific target organ toxicity
(STOT-single exposure)

: It develops lethargy, dizziness, dyspnea, metabolic acidosis, hematuria, or liver disease
: When it is inhaled, it irritates nose and neck
: It develops repetitive respiratory irritation

Specific target organ toxicity
(STOT-repeated exposure)

: According to animal tests, inhalation can cause toxic effects on blood.

Aspiration hazard

: Not classified

Potential Adverse human health effects and

: Not classified

Symptoms

SECTION 12 : Ecological information

12.1. Toxicity

Toxicity

: No data available

12.2. Persistence and degradability

Persistence and degradability

: No data available

12.3. Bioaccumulative potential

Bioaccumulative potential

: No data available



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12.4. Mobility in soil

Mobility in soil : No data available

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment : No data available

12.6. Other adverse effects

Other adverse effects : No data available

SECTION 13 : Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations
: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation,
: Please dispose by using one of the following methods
: 1. Neutralize, hydrolyze, oxidize, or restore it.
: 2. Incinerate or melt it in high temperature
: 3. Solidify it.
Ecology - waste materials : Avoid release to the environment.
: Consider all cautions specified in all applicable regulations of Waste Management Law

SECTION 14 : Transport information

14.1. UN number

UN number : No data available

14.2. UN proper shipping name

UN proper shipping name : No data available

14.3. Transport hazard class(es)

Transport hazard class(es) : No data available

14.4. Packing group

Packing group : No data available

14.5. Environmental hazards

Environmental hazards : No data available

14.6. Special precautions for user

Other adverse effects : No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : No data available

SECTION 15 : Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

Classification according to Regulation (EC) No 1272/2008 (CLP)

: The substances in the mixture are not subject to Authorisation under Title VII or Restrictions under Title VIII of Regulation (EC) No. 1907/2006.
: COMMISSION REGULATION (EU) No 830/2015 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
: Not classified
: Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as toxic to reproduction category 1A or 1B (Table 3.1) or toxic to reproduction category 1 or 2 (Table 3.2)

Candidate List of Substances of Very High Concern for Authorisation (Annex XVII)



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and listed

Carcinogen category 1A (Table 3.1)/ carcinogen category 1 (Table 3.2) listed in Appendix 1

Carcinogen category 1B (Table 3.1)/ carcinogen category 2 (Table 3.2) listed in Appendix 2

: Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows : 'Restricted to professional users'.

Authorisation list (Annex XIV)

: Not classified

Classification according to Directive 1999/45/EC (DPD)

: Not classified

National Regulations

Korea

The Korea Industrial Safety and Health Act :

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Work environment measuring materials Special health diagnosis material (Inspection cycle: 12 months) Exposure limits for chemical and biological materials
Glycerol	56-81-5	Exposure limits for chemical and biological materials

The Enforcement Decree of : No data available

Toxic Chemicals Control Act

The Safety Control of Dangerous Substances Act :

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Class 4 Group 3 petroleum, soluble 4000ℓ
Glycerol	56-81-5	Class 4 Group 3 petroleum, soluble 4000ℓ
DL-hexane-1,2-diol	6920-22-5	Class 4 Group 3 petroleum, soluble 4000ℓ

The Waste Management Law

Ingredients	CAS No.	Regulations
Ethane-1,2-diol	107-21-1	Authorized waste
Glycerol	56-81-5	Authorized waste

Other regulations : No data available

15.2. Chemical safety assessment

Chemical safety assessment : Chemical safety assessment has not been carried out for this mixture

SECTION 16 : Other information

Data of issue

: 29.May. 2009

Latest Revision and Revision data

: [Revision] 1.3 [Date] 12. April, 2019

Instructions for the training

: Product handling instruction shall be included into the educational system about the safety work (Initial training, training at the workplace, repeated training) according to specific conditions at the workplace

Recommended restrictions on use

: Mixture should not be used for any other purpose than for which is appointed (point 1.2).

(i.e. non-statutory recommendations by supplier) Because of the fact that specific conditions of use of mixture are out of supplier's control, It is responsibility of the user to adjust the prescribed warnings to local laws and regulations.

Safety information describes the product in terms of safety and it cannot be considered as technical information about product

Sources of key data used to compile the Safety Data Sheet

: SDS was elaborated according to requirements set in Annex II of Regulation (EC) No 1907/2006 of the European Parliament and of the Council. SDS was prepared using data from the producer.

Purpose of SDS

: Purpose of this SDS is to provide relevant information for users of product to ensure proper handling and control of risks/hazards.

Classification according to

: National Fire Protection Association

NFPA Rating

Ingredients	CAS No.	NFPA Classification	NFPA Classification
Ethane-1,2-diol	107-21-1	NFPA 704 Diamond	
		Health hazards	2 (Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

Ingredients	CAS No.	NFPA Classification	NFPA Classification
Glycerol	56-81-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	1 (Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g. mineral oil , ammonia). Includes some finely divided suspended solids that do not require heating before ignition can occur)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available

Ingredients	CAS No.	NFPA Classification	NFPA Classification
DL-hexane-1,2-diol	6920-22-5	NFPA 704 Diamond	
		Health hazards	0 (Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials)
		Flammability	2 (Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g. diesel fuel , paper, sulfur) and multiple finely divided suspended solids that do not require heating before ignition can occur.)
		Instability/Reactivity	0 (Normally stable, even under fire exposure conditions, and is not reactive with water)
		Special notice	No data available