



MATERIAL SAFETY DATA SHEET

DAEHEUNG CHEMICAL CO., LTD. www.dhcbond.com

PGM

Product Name

D-3371

1. Product and Company Identification

- A. Product Name D-3371
- B. Recommended use of the chemical and restrictions on use
- Recommended use of the chemical the soft, hard PVC, PVC board, PVC pipe and plastics etc.
 - Restrictions on use of the product Flammable, Irritant, Hazardous material
- C. Manufacturer/Supplier/Distributor Information
- Name DAEHEUNG CHEMICAL CO., LTD.
 - Address 68, Sandan-ro 64beon-gil, Pyeongtaek-si, Gyeonggi-do, Korea
 - Emergency phone number 82-31-668-1424

2. Hazards identification

- A. Hazard-Risk Classification
- Flammable Liquid : Category 2
 - Skin Corrosion/Irritation : Category 2
 - Serous Eyes Damage/Eye Irritation : Category 2
 - Reproductive Toxicology : Category 1A
 - Target Organ Toxicity (Single Exposure) : Category 1
 - Target organ toxicity (single exposure): Category 3 (anesthetic action)
 - Target organ toxicity (single exposure): Category 3 (respiratory tract irritation)
 - Target Organ Toxicity (Repeated Exposure) : Category 1
 - Aspiration Harzard : Category 1

B. Label elements including precautionary statements

- Symbol



- Signal Word Danger
- Hazard-Risk Statement
 - H225 Highly flammable liquid and vapour Causes severe skin burns and eye damage
 - H304 May be fatal if swallowed and enters airways Suspected of damaging fertility or the unborn child
 - H315 Causes skin irritation
 - H319 Causes serious eye irritation
 - H335 May cause respiratory irritation
 - H336 May cause drowsiness or dizziness
 - H360 May damage fertility or the unborn child
- Precautionary Statement
 - Prevention
 - P201 Obtain special instructions before use
 - P202 Do not handle until all safety precautions have been read and understood
 - P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
 - P233 Keep container tightly closed
 - P240 Ground/bond container and receiving equipment
 - P241 Use explosion-proof electrical/ventilating/light/.../equipment

Prevention	<p>P242 Use only non-sparking tool</p> <p>P243 Take precautionary measures against static discharge</p> <p>P260 Do not breathe dust/fume/gas/mist/vapours/spray</p> <p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray</p> <p>P264 Wash thoroughly after handling</p> <p>P270 Do not eat, drink or smoke when using this product</p> <p>P271 Use only outdoors or in a well-ventilated area</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection</p>
Response	<p>P281 Use personal protective equipment as required</p> <p>P301+P310 IF SWALLOWED : Immediately call a POISON CENTER or doctor/physician</p> <p>P302+P352 IF ON SKIN : Wash with soap and water</p> <p>P303+P361+P353 IF ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower</p> <p>P304+P340 IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing</p> <p>P305+P351+P338 IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing</p> <p>P307+P311 IF exposed : Call a POISON CENTER or doctor/physician</p> <p>P308+P313 IF exposed or concerned : Get medical advice/attention</p> <p>P312 Call a POISON CENTER or doctor/physician if you feel unwell</p> <p>P314 Get Medical advice/attention if you feel unwell</p> <p>P331 Do NOT induce vomiting</p> <p>P332+P313 If skin irritation occurs : Get medical advice/attention</p> <p>P337+P313 If eye irritation persists get medical advice/attention</p> <p>P362 Take off contaminated clothing and wash before reuse</p>
Storage	<p>P403+P233 Store in a well ventilated place. Keep container tightly closed</p> <p>P403+P235 Store in a well ventilated place. Keep cool.</p> <p>P405 Store locked up</p>
Disposal	<p>P501 Dispose of contents/container to ...</p>

C. Other Hazard-Risk which are not included in the classification criteria (e.g. dust explosion hazard)

	TOLUENE	ACETONE	METHYL ETHYL KETONE	POLYVINYL CHLORIDE
Health	2	1	1	1
Fire	3	3	3	1
Reactivity	0	0	0	0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS number	Content(%)
TOLUENE	Methylbenzene	108-88-3	45~55
ACETONE	2-Propanone	67-64-1	10~20
METHYL ETHYL KETONE	2-Butanone	78-93-3	10~20
	Butanone		
POLYVINYL CHLORIDE	Chloroethylene, polymer	9002-86-2	10~20

4. First aid measures

A. Eye contact	<p>IF IN EYES: Wash carefully with water for several minutes. Remove contact lenses, if possible. Easy to do.</p> <p>If eye irritation persists, Get medical advice/attention.</p>
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A. Precautions for safe handling	Shower and eye bath. Keep away from acidic material. Be careful to high temperatures.
B. Conditions for safe storage (including any incompatibilities)	Store in its original container in a cool environment, keep away from heat, spark, and open flame. Ground containers during storage and transfer operations to avoid static spark. Ideal storage temp. range fore ease of handling is 10 ~ 27°C

8. Exposure controls & personal protection

A. Control parameters (e.g. occupational exposure limit values, biological limit values)

- Occupational exposure limit values

TOLUENE	TWA – 50ppm 188mg/m ³ STEL – 150ppm 560mg/m ³
METHYL ETHYL KETONE	TWA – 200ppm 590mg/m ³ STEL – 300ppm 885mg/m ³
ACETONE	TWA – 500ppm 1188mg/m ³ STEL – 750ppm 1782mg/m ³

- ACGIH limit values

TOLUENE	TWA 50 ppm
METHYL ETHYL KETONE	TWA 200 ppm STEL 300 ppm
ACETONE	TWA 500 ppm STEL 750 ppm
POLYVINYL CHLORIDE	TWA 1 mg/m ³

- Biological limit values

METHYL ETHYL KETONE	2 mg/L
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B. Appropriate engineering controls

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation.

C. Personal protective equipment

- Respiratory protection

A respirator that is recommended or approved for use may be necessary for spray application or other situations such as high temperature use which may produce inhalation exposures.

- Eye protection

Wear eye protection/face protection.

- Hands protection

Wear proper chemical resistant gloves.

- Body protection

Wear proper Protective clothing.

9. Physical and chemical properties

A. Appearance

Physical state	viscous liquid
Color	Colorless & limpidity

B. Odour

Solvent

C. Odour threshold

No data available

D. pH

Not Applicable

E. Melting point/freezing point

Not Applicable

F. Initial boiling point and boiling range

80.5 °C

G. Flashing point

-5.9 °C

H. Evaporation rate

No data available

I. Flammability(solid, gas)

No data available

J. Upper/lower flammability or explosive limits

10.56 % / 1.4 %

K. Vapor pressure

80.82

L. Solubility

Not soluble in water

M. Vapor density

Above 2

N. Relative density

0.94

O. Partition coefficient:n-octanol/water	No data available
P. Auto-ignition temperature	404 °C
Q. Decomposition temperature	No data available
R. Viscosity	45~55 cps (20 °C)
S. Formula mass	No data available

10. Stability and reactivity

A. Chemical stability and possibility of hazardous reactions	<p>Stable under normal conditions.</p> <p>Highly flammable liquid and vapor</p> <p>May polymerize violently and cause fire and explosion.</p> <p>May form explosive mixtures at or above flash point</p> <p>Container may explode when heated</p> <p>Leaks present a fire/explosion hazard</p> <p>Risk of vapor explosion indoors, outdoors and in sewers</p> <p>Vapors may form explosive mixtures with air</p> <p>Vapors may travel to an ignition source and flash back</p> <p>Vapors may cause dizziness or suffocation without awareness</p> <p>May generate irritating, corrosive and toxic gases in case of fire</p> <p>Irritating or burning skin and eyes by inhalation and contact</p> <p>May be toxic by inhalation and skin absorption</p>
B. Conditions to avoid	<p>Avoid the fire, spark, flame, and other ignition sources</p> <p>The fume has an explosive characteristic.</p> <p>Avoid the overheating of container.</p>
C. Incompatible materials	flammable material
D. Hazardous decomposition products	CO, CO ₂ , nitrogen compounds

11. Toxicological information

A. Information on the likely routes of exposure	No data available
B. Health hazards information	
- Acute toxic	
Oral	
TOLUENE	LD50 2600 mg/kg Rat
ACETONE	LD50 5280 mg/kg Rat (EHC(1990), SIDS(1997))
METHYL ETHYL KETONE	LD50 2737 mg/kg Rat
Inhalation	
TOLUENE	LC50 12.5 mg/l 4 hr Rat
ACETONE	LC50 32000 ppm Rat
METHYL ETHYL KETONE	LC50 32 mg/l 4 hr Mouse
Dermal	
TOLUENE	LD50 120000 mg/kg Rat
ACETONE	LD50 12870 mg/kg Rabbit (EHC(1990), PATTY(1994), SIDS(1997))
METHYL ETHYL KETONE	LD50 6480 mg/kg Rabbit
- Skin corrosive/irritant	
TOLUENE	moderate skin irritation in rabbit primary skin irritation test.
ACETONE	Skin - rabbit - Mild skin irritation - 24 h
METHYL ETHYL KETONE	weak irritation(Rabbit)
- Serious eye damage/eye irritation	
TOLUENE	caused mild eye irritation and the subjects recovered from the damage within 7 days in rabbit eye irritation test.

ACETONE	Eyes – rabbit – Eye irritation – 24 h
METHYL ETHYL KETONE	weak irritation
– Respiratory sensitization	No data available
– Skin sensitization	Negative (Guinea Pigs)
– Carcinogenicity	
IARC	Group 3 : Not classifiable as to carcinogenicity to humans
ACGIH	A4 ; Not Classifiable as a Human Carcinogen
– Germ Cell Mutagenicity	
TOLUENE	– Dominant lethal tests: negative – Micronucleus test: positive – Chromosome aberration test: positive
ACETONE	Micronucleus test negative
METHYL ETHYL KETONE	Micronucleus test using mammalian red blood cells : negative
POLYVINYL CHLORIDE	In vitro Salmonella typhimurium Ames test, with or without metabolic activation in mouse lymphoma : negative
– Reproductive toxicity	
TOLUENE	Increased incidence of natural abortion in human; abnormal development and malformation of newborns caused by prenatal toluene abuse;
ACETONE	Mild developmental toxicity symptoms, fetal weight loss, fetal weight loss in mice exposed to high doses (11000ppm (20mg/L)), increased late fetal absorption (EHC, 207 (1998)))
METHYL ETHYL KETONE	In rats, fetal bone delay and mutation were observed by inhalation exposure, but it was not judged to be a malformation.
– Specific target organ toxicity (single exposure):	
TOLUENE	In humans, it acts on the central nervous system, causing fatigue, drowsiness, dizziness, respiratory irritation, excitement, vomiting, central nervous system depression, delirium, and gait abnormalities. Irritating to eyes, nose and throat. Causes anesthesia in laboratory animals.
ACETONE	In humans, irritation of the nose, airways and bronchial tubes, and exposure to high concentrations can cause headache, dizziness, exhaustion of the legs and fainting.
METHYL ETHYL KETONE	Inhalation exposure tests in rats or mice showed effects on the central nervous system at relatively low concentrations. Effect on the kidneys at moderate concentrations in rats. In humans, respiratory tract irritation occurs upon inhalation exposure.
– Specific target organ toxicity (repeated exposure)	
TOLUENE	In humans, chronic central nervous system disorders such as headaches, tremors, ataxia, and memory loss accompanied by narrowing of the visual field or nystagmus or hearing loss appear. Brain atrophy was observed. Renal dysfunction such as hematuria or proteinuria appears. Hepatotoxicity accompanied by deafness, changes in auditory evoked potential in the central part of the brain, elevation of SGOT, fatty degeneration of hepatocytes or lymphocyte infiltration.
ACETONE	A significant increase in leukocytes (eosinophils) and a significant decrease in neutrophil phagocytosis were observed in the 500 ppm 6 h/day, 6–day exposure group (ACGIH (2001))
METHYL ETHYL KETONE	Paralysis of the hands and arms in humans. Central nervous system disorder appears.
POLYVINYL CHLORIDE	Edema, internal bleeding from the alveoli in the lungs
– Aspiration hazard	
ACETONE	Kinematic viscosity 0.426 mm ² /s (calculated value)
METHYL ETHYL KETONE	Ketones with less than 13 carbon atoms

12. Ecological information

A. Aquatic and terrestrial ecotoxicity

- Fish

TOLUENE	LC50 24 mg/ℓ 96 hr Oncorhynchus mykiss
ACETONE	LC50 > 100 mg/ℓ 96 hr
METHYL ETHYL KETONE	LC50 3220 mg/ℓ 96 hr Pimephales promelas
– Shellfish	
METHYL ETHYL KETONE	EC50 5091 mg/ℓ 48 hr Daphnia magna
– Bird	
METHYL ETHYL KETONE	EC50 > 500 mg/ℓ 96 hr Skeletonema costatum
B. Persistence and degradability	
– Persistence	
TOLUENE	log Kow 2.73
METHYL ETHYL KETONE	log Kow 0.29
C. Bioaccumulative potential	
– Potential	
TOLUENE	86 (%) 20 day
METHYL ETHYL KETONE	89 (%) 20 day
D. Mobility in soil	No data available
E. Other adverse effects	No data available

13. Disposal considerations

A. Disposal method	Destroy the product by incineration
B. Disposal precaution	Destroy the product by incineration

14. Transport information

A. UN number	1133
B. UN proper shipping name	ADHESIVES containing flammable liquid
C. Transport hazard class:	3
D. Packing group (if applicable)	II
E. Marine pollution (yes/no)	No

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

F–E, S–D

15. Regulatory information

A. Industrial Safety and Health Act	Article 39 (Management, etc. of Harmful Agents) Article 41 (Preparation, Keeping, etc. of Material Safety Data Sheet)
B. Toxic Chemical Control Act	Not Applicable.
C. Dangerous Material Safety Control Act	
TOLUENE	The 4th type, the 1st petroleum type 200ℓ
ACETONE	The 4th type, the 1st petroleum type 400ℓ
METHYL ETHYL KETONE	The 4th type, the 1st petroleum type 200ℓ
D. Wastes Management Act	Designated Wastes
E. Other requirements in domestic and other countries	
– Domestic	Not Applicable.
– Other countries	
CERCLA	
TOLUENE	453.599 kg 1000 lb
METHYL ETHYL KETONE	2267.995 kg 5000 lb
ACETONE	2267.995 kg 5000 lb
EU regulations	

TOLUENE	F; R11Repr.Cat.3; R63Xn; R48/20-65Xi; R38R67
METHYL ETHYL KETONE	F; R11Xi; R36R66R67
ACETONE	F; R11Xi; R36R66R67
EU regulations	
TOLUENE	R11, R38, R48/20, R63, R65, R67
METHYL ETHYL KETONE	R11, R36, R66, R67
ACETONE	R11, R36, R66, R67
EU regulations	
TOLUENE	S2, S36/37, S46, S62
METHYL ETHYL KETONE	S2, S9, S16
ACETONE	S2, S9, S16, S26, S46

16. Other information

A. Information source and references

Source of data : Korea Occupational Safety and Health Agency (KOSHA)>

B. Issuing date May 30, 2022

C. Revision number and date -

D. others

Source of data : Korea Occupational Safety and Health Agency (KOSHA)>