# MATERIAL SAFETY DATA SHEET

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

PGM

| Product Name | D-3361 |
|---|---|

## 1. Product and Company Identification

A. Product Name: D-3361

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 (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

P242 Use only non-sparking tool

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

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 | 20~30 |
| ACETONE | 2-Propanone | 67-64-1 | 10~20 |
| METHYL ETHYL KETONE | 2-Butanone<br>Butanone | 78-93-3 | 30~40 |
| POLYVINYL CHLORIDE | Chloroethylene, polymer | 9002-86-2 | 20~30 |

## 4. First aid measures

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|---|---|
| A. Eye contact | IF IN EYES: Wash carefully with water for several minutes. Remove contact lenses, if possible. Easy to do. |
| | If eye irritation persists, Get medical advice/attention. |
| B. Skin contact | Skin (or hair): Take off immediately all contaminated clothing or remove the Keep. Rinse skin with water / shower. |

| | |
|---|---|
| B. Skin contact | If skin irritation occurs, Get medical advice/attention. |
| | Take off immediately all contaminated clothing or remove the Keep. |
| | Wash skin with soap and water. |
| C. Inhalation | Do not induce vomiting. |
| | Excessive dust, or fumes when exposed to clean air removed by coughing or other symptoms and Seek medical attention if you have. |
| D. Ingestion | Seek immediate medical advice. |
| | Do not induce vomiting. |
| | If swallowed, rinse mouth with water (only if the person is conscious). |
| E. Indication of immediate medical attention and notes for physician | Medical personnel are aware of the material and to take precautions to protect. |

## 5. Fire-Fighting measures

A. Suitable (and unsuitable) extinguishing media

Alcohol foam, carbon dioxide or water spray should be used.

When to do Fire-Fighting, use dry sand or earth.

B. hazards arising from the chemical (e.g. nature of any hazardous combustion products)

Highly flammable liquid and vapor.

Vapors may form explosive mixtures with air.

The fume is heavie`r air and moves more distance, it could backfire by ignition sources.

C. Special protective equipment and precautions for fire-fighters

Firefighters should wear proper protective equipment.

Apply water from a safe distance to cool and protect surrounding area.

Evacuate area and fight fire from a safe distance.

When the tank, the freight car and the tank truck are enveloped in fire, it will have to quarantine over half-mile(approximately 800m)

## 6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

Do not inhale the volatilized solvent directly.

In order to prevent the dangerous the approach other than the interested party.

B. Environmental precautions and protective procedures

Do not allow to enter drains or waterways.

Do not discharge into the subsoil/soil.

Absorb spills with waste or dry sand or earth, then place in a chemical waste container.

For large spills, prevent them from entering into sewers, watercourses or low area by mounding soil, then recover to a chemical waste container.

C. Methods and materials for containment and cleaning up

Take up with absorbent materials(sand, kieselguhr, universal binder)

Dispose of absorbed material in accordance with the regulations.

## 7. Handling and storage

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|---|---|
| A. Precautions for safe handling | Wear suitable chemical resistant gloves, safety goggles, dust mask and other protective clothing. |
| | Use in the well-ventilated areas. Prevent build-up electrostatic charge(by grounding). |
| A. Precautions for safe handling | Shower and eye bath. Keep away from acidic material. |
| | Be careful to high temperatures. |

| | |
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| 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.<br>Ground containers during storage and transfer operations to avoid static spark.<br>Ideal storage temp. range fore ease of handling is 10 ~ 27℃ |

## 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<br>STEL 300 ppm |
| ACETONE | TWA 500 ppm<br>STEL 750 ppm |
| POLYVINYL CHLORIDE | TWA 1 ㎎/㎥ |

- 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

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|---|---|
| - 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

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|---|---|
| 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 ℃ |
| G. Flashing point | -5.9 ℃ |
| 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 ℃ |

| | |
|---|---|
| Q. Decomposition temperature | No data available |
| R. Viscosity | 340~460 cps (20 ℃) |
| S. Formula mass | No data available |

## 10. Stability and reactivity

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|---|---|
| A.Chemical stability and possibility of hazardous reactions | Stable under normal conditions.<br>Highly flammable liquid and vapor |
| B. Conditions to avoid | Avoid the fire, spark, flame, and other ignition sources<br>The fume has an explosive characteristic.<br>Avoid the overheating of container. |
| C. Incompatible materials | flammable material |
| D. Hazardous decomposition products | CO, $CO_2$, nitrogen compounds |

## 11. Toxicological information

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|---|---|
| A. Information on the likely routes of exposure | No data available |
| B. Health hazards information | |
| – Acute toxic | |
| Oral | |
| TOLUENE | LD50 2600 ㎎/㎏ Rat |
| ACETONE | LD50 5280 ㎎/㎏ Rat (EHC(1990), SIDS(1997)) |
| METHYL ETHYL KETONE | LD50 2737 ㎎/㎏ Rat |
| Inhalation | |
| TOLUENE | LC50 12.5 ㎎/ℓ 4 hr Rat |
| ACETONE | LC50 32000 ppm Rat |
| METHYL ETHYL KETONE | LC50 32 ㎎/ℓ 4 hr Mouse |
| Dermal | |
| TOLUENE | LD50 120000 ㎎/㎏ Rat |
| ACETONE | LD50 12870 ㎎/㎏ Rabbit (EHC(1990), PATTY(1994), SIDS(1997)) |
| METHYL ETHYL KETONE | LD50 6480 ㎎/㎏ 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<br>– Micronucleus test: positive<br>– Chromosome aberration test: positive |
| – Reproductive toxicity | |
| TOLUENE | Increased incidence of natural abortion in human; abnormal development and malformation of newborns caused by prenatal toluene abuse; |

- Specific target organ toxicity (single exposure):

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|---|---|
| TOLUENE | Causes fatigue, sleepiness, dizziness and mild respiratory irritation |
| CYCLO-HEXANE | May cause drowsiness or dizziness. |

- Specific target organ toxicity (repeated exposure)

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|---|---|
| TOLUENE | Causes chronic central nervous system damage including restricted vision, headache associated with nystagmus and hearing loss, tremor, ataxia and amnesia. |

- Aspiration hazard

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| CYCLO-HEXANE | May be fatal if swallowed and enters airways. |

## 12. Ecological information

A. Aquatic and terrestrial ecotoxicity

- Fish

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|---|---|
| TOLUENE | LC50 24 ㎎/ℓ 96 hr Oncorhynchus mykiss |
| ACETONE | LC50 > 100 ㎎/ℓ 96 hr |
| METHYL ETHYL KETONE | LC50 3220 ㎎/ℓ 96 hr Pimephales promelas |

- Shellfish

| | |
|---|---|
| METHYL ETHYL KETONE | EC50 5091 ㎎/ℓ 48 hr Daphnia magna |

- Bird

| | |
|---|---|
| METHYL ETHYL KETONE | EC50 > 500 ㎎/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

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

## 14. Transport information

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|---|---|
| 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. Marin pollution (yes/no) | Yes |

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

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|---|---|
| A. Industrial Safety and Health Act | Article 39 (Management, etc. of Harmful Agents)<br>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)>