



MATERIAL SAFETY DATA SHEET

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



Product Name	ARTIST 03
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1. Product and Company Identification

- A. Product Name ARTIST 03
- B. Recommended use of the chemical and restrictions on use
- Recommended use of the chemical Bond the paper, Form, insulation, Fiber
 - Restrictions on use of the product Don't use this for other use.
- 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 gases : category 1
 - Flammable Liquid : Category 2
 - Compressed gases : Liquefied gases
 - Acute toxicity(inhalation:gas) : Cstegory 2
 - Skin corrosion / Skin irritation : categories 2
 - Serious eye damage / Eye irritation : category 2
 - Carcinogenicity : Category 1A
 - Reproductive toxicity : Category 2
 - Specific target organ toxicity following single exposure : Category 2
 - Aspiration hazard : Category 2

B. Label elements including precautionary statements

- Symbol



- Signal Word

Danger

- Hazard/Risk Statement

- H220 Extremely flammable gas
- H225 Highly flammable liquid and vapour Causes severe skin burns and eye damage
- H280 Contains gas under pressure; may explode if heated
- H305 May be harmful if swallowed and enters airways
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H330 Fatal if inhaled
- H350 May cause cancer
- H361 Suspected of damaging fertility or the unborn child
- H371 May cause damage to organs

- 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

Prevention	<p>P233 Keep container tightly closed</p> <p>P240 Ground/bond container and receiving equipment</p> <p>P241 Use explosion-proof electrical/ventilating/light/.../equipment</p> <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>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>P284 Wear respiratory protection</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>P308+P313 IF exposed or concerned : Get medical advice/attention</p> <p>P309+311 IF exposed or you feel unwell: Call a POISON CENTER or doctor/physician</p> <p>P310 Immediately call a POISON CENTER or doctor/physician</p> <p>P320 Specific treatment is urgent (see ... on this label)</p> <p>P321 Specific treatment (see ... on this label)</p> <p>P331 Do NOT induce vomiting</p> <p>P332+313 If skin irritation occurs: Get medical advice/attention</p> <p>P337+313 If eye irritation persists get medical advice/attention</p> <p>P362 Take off contaminated clothing and wash before reuse</p> <p>P370+378 In case of fire: Use ... for extinction</p> <p>P377 Leaking gas fire – do not extinguish unless leak can be stopped safely</p>
Storage	<p>P381 Eliminate all ignition sources if safe to do so</p> <p>P403 Store in a well ventilated place</p> <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> <p>P410+403 Protect from sunlight. Store in a well ventilated place</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)	
ISOBUTANE	
Health	0
Fire	4
Reactivity	0

CYCLO-HEXANE	
Health	1
Fire	3
Reactivity	0
DIMETHYL ETHER	
Health	2
Fire	4
Reactivity	1
ISOHEXANES	
Health	-
Fire	-
Reactivity	-
PROPANE	
Health	1
Fire	4
Reactivity	0
ROSIN	
Health	2
Fire	1
Reactivity	0
STYRENE-BUTADIENE RUBBER	
Health	1
Fire	1
Reactivity	0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS number	Content(%)
ISOBUTANE	2-METHYL PROPANE	75-28-5	7~10
CYCLOHEXANE	HEXAHYDROBENZENE	110-82-7	10~15
DIMETHYL ETHER	METHYL ETHER	115-10-6	7~10
ISOHEXANES	HEXANES	73513-42-5	25~30
PROPANE	DIMETHYLMETHANE	74-98-6	7~10
MODIFIED ROSIN ESTER	FORAL 85	8050-31-5	10~15
STYRENE-BUTADIENE RUBBER	ETHENYLBENZENE POLYMER WITH	9003-55-8	7~15

4. First aid measures

- A. Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
If eye irritation persists, Consult a physician if irritation persists.
- B. Skin contact
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs : Get medical advice/attention
Wash with soap and water
- C. Inhalation
Immediately call a POISON CENTER or doctor/physician
Rinse mouth. Do NOT induce vomiting
Remove person to fresh air.
- D. Ingestion
Do not induce vomiting unless instructed to do so by medical personnel.

victim two glasses of water.
Never give anything by mouth to an unconscious person. Get medical attention

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 extinguishing media

- Small fire Use dry chemicals, CO₂, water spray or alcohol-resistant foam.
- Large fire Use water spray, water fog or alcohol-resistant foam

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

Thermal decomposition may produce carbon monoxide and other toxic vapors.

C. Special protective equipment and precautions for fire-fighters

Wear an approved positive pressure self-contained breathing apparatus and firefighter turnout gear.

Heat from fire can generate flammable vapor.

When mixed with air and exposed to ignition source, Vapors can burn in open or explode if confined.

Vapors may be heavier than air, May travel long Distances along the ground before igniting and flashing back to vapor source.

Fine sprays/mists may be Combustible at temperatures below flash point.

Fight fire from a safe distance/protected location.

Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of Burns/injuries. Use water sprat/fog for cooling.

Avoid frothing/steam explosion.

Burning liquid may float water.

Although water soluble, may not be practical to extinguish fire by water dilution.

Notify Authorities immediately if liquid enters sewer/public waters.

6. Accidental release measures

If possible, seal leaking container.

Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available.

7. Handling and storage

A. Precautions for safe handling

Avoid breathing gas.

Avoid contact with eyes, skin and clothing.

Keep container closed. Use only with adequate ventilation.

Do not enter confined spaces unless adequately ventilated.

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

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

8. Exposure controls & personal protection

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

- Occupational exposure limit values

ISOBUTANE

No data available

CYCLO-HEXANE

TWA – 200ppm 700mg/m³

DIMETHYL ETHER	No data available
ISOHEXANE	TWA – 500ppm 1188mg/m ³ STEL – 1000ppm 3600mg/m ³
PROPANE	No data available
ROSIN	No data available
STYLENE–BUTADIENE RUBBER(SBR)	No data available
– ACGIH limit values	
ISOBUTANE	TWA – 1000ppm
CYCLO–HEXANE	TWA – 100 ppm
DIMETHYL ETHER	No data available
ISOHEXANE	HEXANE, other isomer TWA – 500 ppm, STEL 1000 ppm
PROPANE	No data available
ROSIN	No data available
SBR	No data available
– Biological limit values	No data available
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	
– Eye/Face protection	Avoid eye contact with vapors, mist, or spray. The following eye protections are recommended : Safety Glasses with side shields.
– Skin protection	Avoid skin contact.
– Respiratory protection	Avoiding breathing gas
– Prevention of swallowing	Do not eat, drink or smoke when using this product.

9. Physical and chemical properties

A. Appearance	
Physical state	liquid
Color	Light yellow color
B. Odour	Little solvent odor
C. Odour threshold	No data available
D. pH	6.7
E. Melting point/freezing point	No data available
F. Initial boiling point and boiling range	No data available
G. Flashing point	– 41.00 °C
H. Evaporation rate	No data available
I. Flammability(solid, gas)	No data available
J. Upper/lower flammability or explosive limits	No data available
K. Vapor pressure	No data available
L. Solubility	Not soluble in water
M. Vapor density	2.97 (Air=1)
N. Relative density	0.67 (Water=1)
O Partition coefficient:n–octanol/water	No data available
P. Auto–ignition temperature	No data available
Q. Decomposition temperature	No data available
R. Viscosity	No data available
S. Formula mass	No data available

10. Stability and reactivity

A. Chemical stability and possibility of hazardous reactions	may explode if heated
B. Conditions to avoid	Keep away from heat/sparks/open flames/hot surfaces – No smoking
C. Incompatible materials	flammable material
D. Hazardous decomposition products	Thermal decomposition products include hydrogen fluoride, hydrogen chloride, carbon monoxide, carbon dioxide and chloride.

11. Toxicological information

A. Information on the likely routes of exposure	No data available
– Inhalation exposure	Irritation, headache, sleepiness, dizziness, orientation loss.
– Ingestion exposure	Irritation, vomiting, headache, dizziness, orientation loss, pulmonary congestion.
– Skin exposure	May cause slight skin irritation. The liquid defats the skin.
– Eye exposure	May cause slight eye irritation.
B. Health hazards information	
– Acute toxic	
Oral	
CYCLO-HEXANE	LD50 12705 mg/kg
ROSIN	LD50 > 2000 mg/kg Rat
Dermal	
CYCLO-HEXANE	LD50 > 2000 mg/kg Rabbit
Inhalation	
ISOBUTANE	LC50 658 mg/l 4hr Rat
CYCLO-HEXANE	LC50 70 mg/l
DIMETHYL ETHER	GAS LC50 308.5 ppm 4hr Rat
PROPANE	LC50 570000 ppm 15min Rat
– Skin corrosive/irritant	
CYCLO-HEXANE	Skin – rabbit – skin irritation
DIMETHYL ETHER	Skin – irritation(Vapor, liquid)
PROPANE	Can cause weak irritation
ROSIN	Can cause weak irritation
– Serious eye damage/eye irritation	
ISOBUTANE	No irritation
CYCLO-HEXANE	No irritation
DIMETHYL ETHER	Eye – Irritation(Vapor, liquid)
PROPANE	No data available
ROSIN	GLP : yes
SBR	STANDARD DRAIZE TEST : Mild, 500mg/24H
– Respiratory sensitization	No data available
– Skin sensitization	
ROSIN	Negative (Guinea Pigs) (GLP : yes)
– Carcinogenicity	
IARC	Group 3
EU CLP	Carc. 1A
– Germ Cell Mutagenicity	
ISOBUTANE	Negative
CYCLO-HEXANE	Negative
DIMETHYL ETHER	Negative
ROSIN	Negative

- Reproductive toxicity No data available
- Specific target organ toxicity (single exposure):
 - It may effect on the central nerves.
 - High levels of steam inhalation may produce unconsciousness.
- Specific target organ toxicity (repeated exposure)
 - DISTILLATES(PETROLEUM), HYDROTREATED LIGHT): skin removal
- Aspiration hazard
 - Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis.

12. Ecological information

A. Aquatic and terrestrial ecotoxicity

- Fish
 - PROPANE LC50 > 100 mg/l 96 hr Fish TLm
 - ROSIN LC50 > 400 mg/l 96 hr
- Shellfish
 - CYCLO-HEXANE EC50 0.9 mg/l 48 hr
 - PROPANE LC50 52.157mg/l 48 hr
 - ROSIN EC50 259 mg/l 48 hr
- Bird
 - PROPANE LC50 32.252mg/l 96 hr
 - ROSIN EC50 > 1000 mg/l 72 hr

B. Persistence and degradability No data available

C. Bioaccumulative potential

- Bioaccumulative
 - ISOBUTANE BCF 1.57 ~ 1.97
 - CYCLO-HEXANE BCF 129
 - PROPANE BCF 13
- Potential
 - ISOBUTANE 65.7 (%) 35 day
 - CYCLO-HEXANE 77 (%) 28 day
 - DIMETHYL ETHER 5 (%) 28 day
 - PROPANE 65.7 (%) 35 day

D. Mobility in soil No data available

E. Other adverse effects No data available

13. Disposal considerations

Recover, reclaim or recycle when practical. Dispose of in accordance with federal. State and local regulations.

14. Transport information

- A. UN number UN 1950
- B. UN proper shipping name AEROSOL
- C. Transport hazard class: 2.1
- D. Packing group (if applicable)
 - ISOBUTANE -
 - CYCLO-HEXANE 2
 - DIMETHYL ETHER -
 - ISOHEXANE II

PROPANE	-
ROSIN	Not Applicable.
SBR	Not Applicable.
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:	
- In case of fire	
ISOBUTANE	F-D
CYCLO-HEXANE	F-E
DIMETHYL ETHER	F-D
ISOHEXANE	F-E
PROPANE	F-D
- In case of spill	
ISOBUTANE	S-U
CYCLO-HEXANE	S-D
DIMETHYL ETHER	S-U
ISOHEXANE	S-D
PROPANE	S-U

15. Regulatory information

A. Industrial Safety and Health Act	No data available
B. Toxic Chemical Control Act	No data available
C. Dangerous Material Safety Control Act	
CYCLO-HEXANE	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	
OSHA	Not Applicable.
CERCLA	
CYCLO-HEXANE	453.599 kg 1000 lb
EPCRA 302	Not Applicable.
EU regulations	
ISOBUTANE	F+; R12
CYCLO-HEXANE	F; R11Xn; R65Xi; R38R67N; R50-53
DIMETHYL ETHER	F+; R12
PROPANE	F+; R12
EU regulations	
ISOBUTANE	R12
CYCLO-HEXANE	R11, R38, R65, R67, R50/53
DIMETHYL ETHER	R12
PROPANE	R12
EU regulations	
ISOBUTANE	S2, S9, S16
CYCLO-HEXANE	S2, S9, S16, S25, S33, S51, S60, S61, S62
DIMETHYL ETHER	S2, S9, S16, S33
PROPANE	S2, S9, S16

16. Other information

A. Information source and references

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

B. Issuing date August 26, 2014

C. Revision number and date 0

D. others

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