Mixed Heptane

GODO CHEMICAL

1. identification

A. Product Name : Mixed Heptane

B. Intended Use : Solvent, uses in coatings, blowing agents, chemicals for mining, rubber production and processing etc.

C. Manufacturer/Supplier

1) Supplier

GODO CHEMICAL Corporation			
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2. hazard identification

A. Hazard Category :

1) Physicochemical Hazards - Flammable liquid : Category 2

2) Health Hazards - Skin corrosion/irritation : Category 2

Serious eye damage/irritation : Category 2

Specific target organ toxicity(Single exposure) : Category 3 (Narcotic effects)

Specific target organ toxicity(Single exposure) : Category 3 (Respiratory tract irritation)

Specific target organ toxicity(Repeated exposure) : Category 2

3) Environmental Hazards - Chronic aquatic toxicity : Category 2

B. Precautionary Statement(s) & Warning Label

1) Symbol :

2) Signal Word : Danger

3) Hazard Statement(s) :

H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation.
H336 May cause drowsiness and dizziness.
H373 May cause damage to organs(liver and bowels) through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

4) Precautionary Statement(s) :

■ Prevention

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/lighting/equipment.
P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
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 hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

■ Response

P302+P352 IF ON SKIN: Wash with plenty of 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.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P314 Get medical advice/attention if you feel unwell.
P321 Specific treatment
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.
P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).
P391 Collect spillage.

■ 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 in accordance with local/regional/national/international regulation

C. Other hazards

NFPA ratings : Health=2, Fire=3, Reactivity=0

3. composition/information on ingredients

Chemical Name	Other Name	CAS No. or EU No.	(%)
Iso-heptane	-	31394-54-4 (EU No.250-610-8)	70~80%
n-heptane	NORMAL HEPTANE	142-82-5 (EU No.205-563-8)	3~7%
cyclo-heptane	SUBRANE	291-64-5 (EU No.206-030-2)	7~13%
2-Methylpentane	iso-hexanes	107-83-5	7~13%

4. first aid measures

A. Eye Contact : Flush thoroughly with water at least 15minutes.
Get medical assistance.
Do not rub your eyes.
Go to the hospital immediately if symptoms(flare, irritate) occur.
Remove contact lenses if worn.

B. Skin Contact : In case of massive exposure, remove contaminated clothing while showering with water. Call a physician. Discard clothing and shoes.
Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Laundering enough contaminated clothing before reuse.
Go to the hospital immediately if symptoms(flare, irritate) occur.

C. Inhalation : If inhaled, remove to fresh air.
If not breathing give artificial respiration. Get medical aid.
When exposed to large amounts of steam and mist, move to fresh air.
Take specific treatment if needed.

D. Ingestion : Potential for aspiration if swallowed. Get medical aid immediately.
About whether I should induce vomiting Take the advice of a doctor.
Rinse your mouth with water immediately.

E. Likely Acute or Delayed Symptoms/Effects :
1) Inhalation : Not available
2) Skin contact : Not available
3) Eye contact : Not available
4) Ingestion : Not available

F. Emergency measure / Notes to physician : Treat symptomatically
Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. fire fighting measures

A. Extinguishing media :
1) Suitable extinguishing media : foam, dry chemical powder, carbon dioxide, dry sands
2) Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
Avoid use of water jet for extinguishing
3) Unusual fire(big fire) : Water spray or fog

B. Unusual fire & Explosion hazard :
1) Hazardous combustion product : Carbon oxides
(carbon monoxide (CO), carbon dioxide (CO2))
2) Fire & Explosion hazard : Static electricity will cause to fire or explosion.
Vapor is more heavier than air.
Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.
May emit clouds of acrid smoke.
Liquid and vapour are highly flammable.
Severe fire hazard when exposed to heat, flame and/or oxidisers.
Vapour may travel a considerable distance to source of ignition.
Heating may cause expansion or decomposition leading to violent rupture of containers.

C. Special fire fighting procedure / protection of firefighters :
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Flammable, high-pressure gas. Evacuate all personnel from danger area.

Notify your local firestation and inform the location of the fire and characteristics hazard.
Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
Avoid inhalation of materials or combustion by-products.
Do not access if the tank on fire.
Use appropriate extinguishing measure suitable for surrounding fire.
Vapor or gas is burned at distant ignition sources can be spread quickly.
Fight fire from a safe distance, with adequate cover.
If safe, switch off electrical equipment until vapour fire hazard removed.
Use water delivered as a fine spray to control the fire and cool adjacent area.
Cool fire exposed containers with water spray from a protected location.

6. additional release measures

A. Personal precautions :
Shut off all sources of ignition.
Wear self-contained breathing apparatus.
Flammable, high-pressure gas. Forms explosive mixtures with air.
Must work against the wind, let the upwind people to evacuate.
Move container to safe area from the leak area.
Handling the damaged containers or spilled material after wearing protective equipment.
Do not direct water at spill or source of leak.
Avoid skin contact and inhalation.

B. Environmental precautions :
1) atmosphere release : Not available
2) soil release :Not available
3) underwater release : Prevent further leakage or spillage if safe to do so. Dike to collect large liquid spills. The product should not be allowed to enter drains, water courses or the soil.
Prevent runoff and contact with waterways, drains or sewers.
If large amounts have been spilled, inform the relevant authorities.

C. Spill cleanup methods :
Use non-sparking handtools and explosionproof electrical equipment. Contain spillage, and then collect with non-combustible absorbent materials and place in container for disposal according to local/national regulations. Following product recovery, flush area with water.
Dispose of waste in accordance with local regulation.
Appropriate container for disposal of spilled material collected.
Small leak: sand or other non-combustible material, please let use absorption.

7. handling and storage

A. Handling : Use only with adequate ventilation. Keep away from heat, sparks and flame.
Avoid breathing vapor. Use non-sparking type tools and equipment.
Wash thoroughly after handling.
Avoid direct physical contact.
Avoid contact with incompatible materials.
Refer to Engineering controls and personal protective equipment.
Do not inhale the steam prolonged or repeated.

B. Storage : Store and use with adequate ventilation.
There must be no sources of ignition. All electrical equipment in storage areas must be explosion-proof.
Save applicable laws and regulations.
Collected them in sealed containers.
Store away from water and sewer

8. exposure controls/personal protection

A. Exposure limit value :
1) ACGIH :
- TLV-TWA : Iso-hexane - 500ppm, heptane - 400ppm
- TLV-STEL : heptane - 500ppm

2) OSHA : Not available

B. Engineering control : Adequate ventilation(localize ventilation) should be provided in workplaces. Use non sparking tools.
A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Personal protective equipment
1) Respiratory protection : If required to control exposure, use only suitable respirators and components tested and approved under appropriate government standards such as NIOSH.
Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

Consider warning properties before use.
Any chemical cartridge respirator with organic vapor cartridge(s).
Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
Any air-purifying respirator with a full facepiece and an organic vapor canister.
For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

2) Eye protection - Wear approved chemical safety glasses or goggles where eye exposure is reasonably probable.
Eye wash fountain is recommended.

3) Hand protection - Butyl rubber gloves are recommended.

4) Skin / Body protection - Wear appropriate chemical resistant protective clothing.

9. physical and chemical properties

A. Appearance(physical state, color etc.) : colorless liquid
B. Odor : gasoline odor
C. Odor Threshold : Not available
D. pH : Not available
E. Melting point/Freezing point : Not available
F. Boiling point/range : 85 ~100℃
G. Flash point : -17℃
H. Evaporation rate : Not available
I. Flammability (solid, liquid): Not available
J. Flammability Limit (lower/upper) : 1.0 / 8.0 vol%
K. Vapor pressure : Not available
L. Solubility in water : Not available
M. Vapor density(Air=1) : Not available
N. Specific gravity : 0.6964 (15℃)
O. Partition Coefficient(n-Octanol/water) : Not available
P. Auto-ignition temperature : Not available
Q. Thermal decomposition : Not available
R. Kinematic Viscosity : 1.59cSt (23℃)
S. Molecular weight : Not available

10. stability and reactivity

A. Stability : Stable under ordinary conditions of use and storage
B. Possibility of hazardous reaction : NO
C. Conditions to avoid : Heat, sparks, flames, ignition sources, and incompatibles
D. Incompatible material : Oxidizing agents, strong acids
E. Hazardous decomposition products : Hydrocarbon compounds (carbon monoxide, soot),

11. toxicological information

A. Route of exposure
1) Inhalation : May cause respiratory irritation, May cause drowsiness and dizziness.
2) Ingestion : Not available
3) Skin contact : Causes skin irritation
4) Eye contact : Causes serious eye irritation

B. Delayed and immediate effects and also chronic effects from short and long term exposure
1) Acute toxicity :
- Oral : Not available
- Dermal : [Cycloheptane] : LD50 > 86700 ㎎/㎏ Rabbit
- Inhalation : [n-Heptane] : LC50 = 53 ㎎/L 4 hr Rat

2) Skin corrosion/irritation :
- [Isoheptane] : Induce skin irritations.
- [Cycloheptane] : Slight Irritation: Guinea Pig(red spots and dryness)
- [n-Heptane] : Appear skin irritant to human.

3) Serious eye damage/irritation :
- [Isoheptane] : Induce eye irritations.
- [n-Heptane] : irrtant to eye

4) Respiratory sensitization : Not available
5) Skin sensitization : Not available
6) Carcinogenicity :
- MOL Notice : Not available
- OSHA : Not available
- NTP : Not available
- IARC(GROUP) : Not available
- ACGIH : Not available
- EC : Not available

7) Germ cell mutagenicity :
- Micronucleus Test : Negative

8) Reproductive toxicity : Not available

9) STOT-single exposure :
- [Isoheptane] : It causes irritation of respiratory and if inhaled in a short period of time, stimulates vomit, headach, sleepiness, dizziness, loss of Disorientation or loss of adjustment function and cramp.
- [n-Heptane] : It was observed about narcotic effects and irritation of enters airways by inhaled exposure test using white rats and mice and may causes inhibition of central nervous system or irritation of mucous membrane to human.

10) STOT-repeated exposure :
[n-Heptane] : It causes functional disorder to influence the liver and bowels.

11) Aspiration hazard : [n-Heptane] : Hydrocarbon, dynamic viscosity 0.61 mm2/s (20 ℃)

12. ecological information

A. Ecotoxicity :
1) Fishes : [Isoheptane] : LC50 0.961 mg/L 96 hr
[Cycloheptane] : LC50 0.960 mg/L 96 hr Other
[n-Heptane] : LC50 = 375 mg/L 96 hr
2) Crustacea : [Isoheptane] : EC50 2.212 mg/L 48 hr
[Cycloheptane] : LC50 1.180 mg/L 48 hr Other
[n-Heptane] : LC50 = 2500 mg/L 96 hr
3) Seaweeds : [Isoheptane] : EC50 1.526 mg/L 96 hr
[Cycloheptane] : EC50 0.828 mg/L 96 hr Other

B. Persistence and Degradability :
1) Persistence : [Isoheptane] log Kow 3.33, [Cycloheptane] log Kow 4.00
2) Degradabiltiy : Not available

C. Bioaccumulation potential :
1) Biodegration : [Cycloheptane] : < 25 (%) 24 hr
2) Bioaccumulation : [Isoheptane] BCF 142.3, [Cycloheptane] BCF 240

D. Mobility in soil : Not available

E. Other adverse effects : Not available

13. disposal considerations

A. Disposal method : Dispose in accordance with all applicable regulations.
Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
If water separation is possible, pre-process with Water separation process.
Dispose by incineration.
Will be pre-processed by the separation of oil and water.

B. Disposal instruction : The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities. Dispose of waste in accordance with all applicable laws and regulations.

C. Waste code : Not available

14. transport information

A. UN classification : UN1206
B. Proper shipping name : Heptanes
C. Class/division : 3
D. Packing group : II
E. Marine pollutant : Applicable(X)
F. Special precautions for user related to transport or transportation measures
○ Local transport follows in accordance with Dangerous goods Safety Management Law.
○ Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-D (Flammable liquids)

15. regulatory information

A. Additional national and/or international regulatory information
○ Information of EU Classification :
• Classification :
- [Isoheptane] : F; R11 Xn; R65 Xi; R38 R67 N; R50-53
- [n-Heptane] : F; R11Xn; R65Xi; R38R67N; R50-53
• Risk Phrases :
- [Isoheptane] : R11, R38, R50/53, R65, R67
- [n-Heptane] : R11, R38, R65, R67, R50/53

- Safety Phrase :
  - [Isoheptane] : S2, S9, S16, S29, S33, S60, S61, S62
  - [n-Heptane] : S2, S9, S16, S29, S33, S60, S61, S62

○ U.S. Federal regulations :

- OSHA PROCESS SAFETY (29CFR1910.119) : Not available
- CERCLA Section 103 (40CFR302.4) : Not available
- EPCRA Section 302 (40CFR355.30) : Not available
- EPCRA Section 304 (40CFR355.40) : Not available
- EPCRA Section 313 (40CFR372.65) : Not available

○ Rotterdam Convention listed ingredients : Not available

○ Stockholm Convention listed ingredients : Not available

○ Montreal Protocol listed ingredients : Not available

16. other information

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability on completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

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○ 2015.06.01 revised

○ 2018.03.12 'physical and chemical properties' revised

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