

## n-Hexane 50%

**1. identification**

A. Product Name : n-Hexane 50 %

B. Intended Use : Solvent

C. Manufacturer/Supplier

1) Supplier/Distributor information

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  
Reproductive toxicity : Category 2  
Specific target organ toxicity(Single exposure) : Category 3 (Narcotic, Respiratory tract irritation)  
Specific target organ toxicity(Repeated exposure) : Category 1  
Aspiration hazard : Category 1
- 3) Environmental Hazards : Not classified

B. Precautionary Statement(s) & Warning Label

1) Symbol :



2) Signal Word : Danger

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## 3) Hazard Statement(s) :

H225 Highly flammable liquid and vapour

H304 May be fatal if swallowed and enters airways

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation.

H336 May cause drowsiness and dizziness.

H361 Suspected of damaging fertility or the unborn child

H372 Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)

## 4) Precautionary Statement(s) :

## ■ 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/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.

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 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.

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.

P321 Specific treatment

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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.

P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).

■ 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	(%)
N-hexane	Hexane	110-54-3	50~55%
2-Methylpentane	ISOHEXANE	107-83-5	37~47%
methyl cyclopentane	—	96-37-7	5~10

### 4. first aid measures

A. Eye Contact : Flush thoroughly with water at least 15minutes.

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.

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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.

D. Ingestion : Potential for aspiration if swallowed. Get medical aid immediately.

Do not induce vomiting unless directed to do so by medical personnel.

Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

E. Likely Acute or Delayed Symptoms/Effects :

1) Inhalation

– Short term exposure : irritation, vomiting, difficult breathing, headache, sleepiness, dizziness

– Long term exposure : irritation, vomiting, difficult breathing, headache, sleepiness, dizziness

2) Skin contact

– Short term exposure : irritation

– Long term exposure : irritation

3) Eye contact

– Short term exposure : irritation

– Long term exposure : irritation

4) Ingestion

– Short term exposure : irritation, vomiting, headache, sleepiness, dizziness

– Long term exposure : Not available

F. Emergency measure / Notes to physician :

Notify medical personnel of contaminated situations and have them take appropriate protective measures.

If exposed or concerned, get medical attention/advice.

## 5. fire fighting measures

A. Extinguishing media :

1) Suitable extinguishing media

: Use foam, dry chemical powder, carbon dioxide

2) Unsuitable extinguishing media : Avoid use of water jet for extinguishing

3) Unusual fire(big fire) : Do use extinguishing media with water spray or fog.

B. Unusual fire & Explosion hazard :

1) Hazardous combustion product : Carbon oxides (carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>))

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- 2) Fire & Explosion hazard : Static electricity will cause to fire or explosion.  
Vapor is more heavier than air.  
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.  
Move containers from fire area, if you can do without the risk.  
Cool containers with water until well after fire is out.  
Keep unauthorized personnel out.  
Use appropriate extinguishing measure suitable for surrounding fire.  
Vapor or gas is burned at distant ignition sources can be spread quickly.  
The extremely low flash point made by fire-fighters may be less effective at digesting weeks.  
May be violently or explosively reactive.  
Prevent, by any means available, spillage from entering drains or water course.  
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.

## 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.  
Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.  
Ventilate closed spaces before entering.  
Must work against the wind, let the upwind people to evacuate.  
Do not direct water at spill or source of leak.  
Avoid skin contact and inhalation.  
Keep unauthorized people away, isolate hazard area and deny entry.

B. Environmental precautions :

- 1) atmosphere release : Not available
- 2) soil release : Not available
- 3) underwater release : Not available

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Prevent runoff and contact with waterways, drains or sewers.  
If large amounts have been spilled, inform the relevant authorities.

## C. Spill cleanup methods :

## 1) Small liquid spill

: Collect liquid in an appropriate container or absorb with an inert material sand or other non-combustible material, please let use absorption.

Wipe off the solvent.

Dike for later disposal.

Do not use plastic containers.

## 2) Large spillages

: Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Stay upwind and keep out of low areas. Dike for later disposal.

Notification to central government, local government. When emissions at least of the standard amount

Dispose of waste in accordance with local regulation.

Appropriate container for disposal of spilled material collected.

## 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.

Comply with all applicable laws and regulations for handling

Get the manual before use.

Do not inhale the steam prolonged or repeated.

Contaminated work clothing should not be allowed out of the workplace.

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.

Keep in the original container.

Please pay attention to incompatibilities materials and conditions to avoid.

Prevent static electricity and keep away from combustible materials or heat sources. Collected them in sealed containers.

## 8. exposure controls/personal protection

A. Exposure limit value :

## 1) ACGIH :

- TLV-TWA : N-hexane - 50ppm

## 2) OSHA : Not available

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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.

Respiratory protection is ranked in order from minimum to maximum. 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 – Wear appropriate chemical resistant glove.

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

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**9. physical and chemical properties**

- A. Appearance(physical state, color etc.) : colorless liquid
- B. Odor : gasoline odor
- C. Odor Threshold : (N-hexane 60ppm)
- D. pH : neutral
- E. Melting point/Freezing point :  $-93.35^{\circ}\text{C}$
- F. Boiling point/range :  $65^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- G. Flash point :  $-23^{\circ}\text{C}$
- H. Evaporation rate : n-hexane 15.8(Butyl acetate=1)
- I. Flammability (solid, liquid): Not available
- J. Flammability Limit (lower/upper) : 1.1 / 7.5 vol%
- K. Vapor pressure : 283.5mmHg (@ $20^{\circ}\text{C}$ )
- L. Solubility in water : n-hexane 0.014% (@ $20^{\circ}\text{C}$ )
- M. Vapor density(Air=1) : 3(Air=1)
- N. Specific gravity : 0.6725( $15^{\circ}\text{C}$ )
- O. Partition Coefficient(n-Octanol/water) : 4 (@ $20^{\circ}\text{C}$ )
- P. Auto-ignition temperature :  $225^{\circ}\text{C}$
- Q. Thermal decomposition : Not available
- R. Viscosity : 0.3cP(@ $25^{\circ}\text{C}$ )
- S. Molecular weight : 85.5

**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, halogen, flammable material
- E. Hazardous decomposition products : Hydrocarbon compounds, Carbon oxides  
(carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>))

**11. Toxicological information**

- A. Route of exposure
  - 1) Inhalation : May be fatal if swallowed and enters airways. 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



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## 1) Acute toxicity :

- Oral : [n-Hexane] : LD50 = 25000 mg/kg Rat
- Dermal : Not available
- Inhalation : [n-Hexane] : LC50 = 77000 ppm 1 hr  
[Methyl cyclopentane] : Steam LC50 > 20 mg/L 4 hr Rat

## 2) Skin corrosion/irritation :

- [n-Hexane] : This result was reported to human for skin irritant.
- [Methyl cyclopentane] : Non-stimulated to rabbits

## 3) Serious eye damage/irritation :

- [n-Hexane] : This result was reported to human for eye irritant.
- [Methyl cyclopentane] : Irritant to rabbits

## 4) Respiratory sensitization : Not available

## 5) Skin sensitization : Not available

## 6) Carcinogenicity : Not available

- MOL Notice : -
- OSHA : -
- NTP : -
- IARC(GROUP) : -
- ACGIH : -
- EC : -

## 7) Germ cell mutagenicity :

- [n-Hexane] : Dominant lethal assay in rodent : negative, micronucleus Test on red blood cell in mammal : negative, chromosomal aberration test on marrow cell in mammal : negative
- [Methyl cyclopentane] : Micronucleus Test on in vivo bone marrow in mammal : negative

## 8) Reproductive toxicity :

- [n-Hexane] : Tissue damage of testis appeared with dyszoospermia to white rats.
- MOL Notice : Reproductive toxicity 2

## 9) STOT-single exposure :

- [n-Hexane] : Dizziness and inhibition of central nervous system appeared by acute Inhalation toxicity to human.
- [Methyl cyclopentane] : Irritate enters airways if inhaled.

## 10) STOT-repeated exposure :

- [n-Hexane] : Multiple neuropathy(disorders of sensory nerves and motor nerves) appear by chronic exposure to human.
- [Methyl cyclopentane] : - NOAEL 4.47 mg/L (Rat) - Similar toxicological symptoms were not observed for 13th week to repeated inhalation exposure in high concentration (20.21 mg/L ) by animal test except for observed flexible response.

11) Aspiration hazard : [n-Hexane] Hydrocarbon, dynamic viscosity below 20.5 mm<sup>2</sup>/s(40°C)

## 12. Ecological information

### A. Ecotoxicity :

- Acute aquatic toxicity : Not classified
- Chronic aquatic toxicity : Not classified
- 1) Fish :
  - [n-Hexane] : LL50 = 12.51 mg/L 96 hr (ECHA), LC50 = 113 mg/L 96 hr (ECOTOX)
  - [Methyl cyclopentane] : LC50 2.25 mg/L 96 hr (Estimate)
- 2) Crustaceans :
  - [n-Hexane] : LC50 = 3.88 mg/L 48 hr (EHC (1991))
  - [Methyl cyclopentane] : LC50 6.67 mg/L 48 hr (Estimate)
- 3) Algae :
  - [n-Hexane] : EL50 = 9.285 mg/L 72 h (Estimate)
  - [Methyl cyclopentane] : EC50 4.44 mg/L 96 hr (Estimate)

### B. Persistence and degradability:

- 1) Persistence :
  - [n-Hexane] : log Kow = 4 (20°C, pH=7) (ECHA)
  - [Methyl cyclopentane] : log Kow 3.37 (UAKRON)
- 2) Degradability : Not available

### C. Bioaccumulative potential :

- 1) Bioaccumulative potential :
  - [n-Hexane] : BCF = 501.187 (Estimate)
  - [Methyl cyclopentane] : BCF 210 (NLM/HSDB)
- 2) Biodegradation :
  - [n-Hexane] : Biodegradability = 100 (%) (existing chemical safety inspections data)

### D. Mobility in soil :

- [Methyl cyclopentane] : Koc 1600

### 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 designated waste is mixed, it is difficult to treat separately, 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.

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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 : UN1208
- B. Proper shipping name : Hexanes
- C. Class/division : 3
- D. Packing group : II
- E. Marine pollutant -
- 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 :
      - [n-Hexane] : F; R11 Repr. Cat. 3; R62 Xn; R48/20-65 Xi; R38 R67 N; R51-53
    - Risk Phrases :
      - [n-Hexane] : R11, R38, R48/20, R62, R65, R67, R51/53
    - Safety Phrase :
      - [n-Hexane] : S2, S9, S16, S29, S33, S36/37, S61, S62
  - U.S. Federal regulations :
    - OSHA PROCESS SAFETY (29CFR1910.119) : Not available
    - CERCLA Section 103 (40CFR302.4) :
      - [n-Hexane] : 2267.995 kg 5000 lb
    - EPCRA Section 302 (40CFR355.30) : Not available
    - EPCRA Section 304 (40CFR355.40) : Not available
    - EPCRA Section 313 (40CFR372.65) :
      - [n-Hexane] : Applicable
  - Rotterdam Convention listed ingredients : Not available

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- 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 or 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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