

Safety Data Sheet

1. Product and company identification

Product name : Acetone
Name of manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan
Name of section : Electronic materials division technical department
Telephone number : +81-3-6214-1080
Facsimile number : +81-3-3241-1043
Mail address : el-info@gms.kanto.co.jp
SDS No. : GE00001

2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Flammable liquids : Category 2
Pyrophoric liquids : Out of category
Corrosive to metals : Out of category

Human health hazard

Acute toxicity(oral) : Out of category
Acute toxicity(dermal) : Out of category
Acute toxicity(inhalation:vapors) : Out of category
Skin corrosion/irritation : Out of category
Serious eye damage/eye irritation : Category 2B
Skin sensitization : Out of category
Reproductive toxicity : Category 2
Specific target organ systemic toxicity(single exposure) : Category 3 (respiratory tract irritation) 、 Category 3 (anesthetic action)
Specific target organ systemic toxicity(repeated exposure) : Category 1

Environmental hazard

Hazardous to the aquatic environment-acute hazard : Out of category
Hazardous to the aquatic environment-chronic hazard : Out of category

Pictogram or symbol



Signal word : Danger

Hazard statement : Highly flammable liquid and vapor
Causes eye irritation
Suspected of damaging fertility or the unborn child
May cause respiratory irritation
May cause drowsiness and dizziness
Causes damage to organs (central nervous system, respiratory organs, digestive tract) through prolonged or repeated exposure

Cautions

Safety measurements : Do not handle until all safety precautions have been read and understood.
Keep away from ignition sources such as heat, sparks, or open flame.
Keep containers tightly closed.
Ground container and receiving equipment in case of transport and stirring.
Use explosion-proof apparatus.
Use only non-sparking tools.
Do not breathe dust, mist, and vapor.
Use only in a well-ventilated area.
Do not eat, drink or smoke when using this product.
Wear appropriate protective gloves, glasses, clothing, face shield, or mask.
Wash hands thoroughly after handling.

First-aid measures : If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical treatment if you feel unwell.

If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.
If on skin : Remove contaminated clothing and the substance. Get medical treatment, if you feel unwell.
Wash hands thoroughly after handling.
If exposed or concerned, get medical treatment.
Get medical treatment, if you feel unwell.

Storage : Tightly container closed and store in a well-ventilated area.
Store locked up.

Disposal : Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

Substance/Mixture : Substance

Chemical name or commercial name

: Acetone

Synonyms : Dimethyl ketone

Ingredients and composition

: Acetone min. 99.8%
Chemical formula : CH₃COCH₃
CAS No. : 67-64-1
TSCA Inventory : Registered
EINECS No. : 2006622
Dangerous and hazardous ingredients
: Acetone

4. First aid measures

Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.
Skin contact : Wash the affected areas under running water.
Eye contact : Wash the affected areas under running water for at least 15 minutes.
If necessary, get medical treatment.
Ingestion : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.

Anticipated acute and delayed symptoms

: If inhaled the vapor, cause hyper secretion of saliva, face flush, cough, dizziness, lethargy, headache, throat ache, unconsciousness, nausea, vomiting, etc.

Protection for first aid person

: Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, foam

Prohibited extinguishing media
: None

Particular fire fighting : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.

Protection for firefighters

: Wear breathing apparatus.

6. Accidental release measures

Cautions for personnel : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Cautions for environment : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and flush spillage area with copious amounts of water.

Prevention of second accident : Remove nearby sources of ignition and prepare extinguishing media.

7. Cautions of handling and storage

Handling

Engineering measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.
Ventilate well at working places.
Prevent build-up of electrostatic charges (e.g. by grounding).

Cautions for safety handling

: Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.

Cautions : Do not allow contact with oxidizing substances.

Storage

Adequate storage condition

: Store in a dark, cool place and tightly closed.

Safety adequate container materials

: Glass, fluorine resin, stainless steel
Do not use vinyl chloride resin, acrylic resin, polystyrene etc.

8. Exposure control/Personal protection

Engineering measures : Use with an enclosed system or a local exhaust ventilation.

Control parameters

ACGIH(2015) : 250ppm(TLV-TWA)
500ppm(TLV-STEL)

Protective equipment

Respiration protective equipment

: Chemical cartridge respirator with an organic vapor cartage or airline respirator

Hands protective equipment

: Impervious protective gloves

Eyes protective equipment

: Safety goggles

Skin and body protective equipment

: Protective clothing, protective boots

9. Physical and chemical properties

Appearance : Liquid

Color : Colorless

Odor : Ketone like odor

pH : Not available

Boiling point : 56.13°C

Melting point : -94.7°C

Flash point : -18°C

Auto-ignition point : 560°C
Explosion characteristics
Explosion limit : upper : 12.80vol% lower : 2.55vol%
Vapor pressure : 233hPa(20°C)
Vapor density : 2.0
Density : 0.79g/cm³ (20°C)
Solubility
Solubility in solvents : Water : Miscible
Organic solvents ; Miscible with many kinds of organic solvents like ethanol, diethyl ether.
log Pow : -0.24
Other data : Viscosity : 0.316cP(20°C)

10. Stability and reactivity

Stability : Stable under normal conditions.
Reactivity : Reacts violently with chromium(VI) oxide, sodium chlorate, hydrogen peroxide, nitric acid and may cause fire.
Incompatible conditions : Light, heat
Incompatible materials : Oxidizing substances
Hazardous decomposition products
: Carbon monoxide

11. Toxicological information

Acute toxicity : Oral : Out of category
Dermal : Out of category
Inhalation(vapor) : Out of category
Inhalation(dust, mist) : Not possible to classify because of insufficient data.
rat oral LD50>5000mg/kg
rat inhalation LC50=32000ppm
rabbit skin LD50>5000mg/kg
Skin corrosion/irritation : Out of category
Acetone has no irritation to rabbit skin.
Serious eye damage/eye irritation
: Causes eye irritation(category 2B)
Vapor stimulates human eye. However, if exposure stops, irritation will not follow. The result of severe is reported in the rabbit. Although a corneal epithelium is destroyed, substrate is not destroyed, and destruction of a corneal epithelium will be recovered in 4-6 days. Since acetone is not corrosive eye irritations, it was classified into category 2B.
Respiratory sensitization or Skin sensitization
: Respiratory sensitization : Not possible to classify because of insufficient data.
Skin sensitization : Out of category

There was observed no skin sensitization in Maximization test using guinea pig.

Mutagenicity : Not possible to classify because of insufficient data.

Acetone is negative in vivo micronucleus examination.

Carcinogenic effects : Not possible to classify because of insufficient data

ACGIH classifies it as the group A4(not classifiable as a human carcinogen).

Effects on the reproductive system

: Suspected of damaging fertility or the unborn child(category 2)

Acetone is described that it has no effect on abortion by the epidemiologic investigation. But high concentration exposure of acetone for rats, (11000ppm, 20mg/L, caused weak developmental toxicity) that is decrease in embryonic weight, high concentration exposure of acetone for mice, 6600ppm, 15.6mg/L, caused decrease in embryonic weight, later embryo absorption rate.)

Specific target organ systemic toxicity single exposure

: May cause respiratory irritation(category 3) - May cause drowsiness and dizziness(category 3)

Based on the descriptions of acetone that irritation in the human throat is caused by 12000ppm exposure, that irritation is caused in the nasal cavity, throat and trachea by 1190 and 2400mg/m³/6h exposure to humans, and that irritation was caused in the throat by 1000ppm/4h exposure.

Thus, it was classified into category 3 (respiratory irritation). From the description that a man who swallowed 200mL of the substance progressed to coma (recovery of consciousness after 12 hours), and a worker who was exposed vapor of 12000ppm suffered from headache, dizziness, weakness of legs, unconsciousness, it was classified into category 3 (anesthetic action).

Specific target organ systemic toxicity repeated exposure

: Cause damage to organs (central nervous system, respiratory organs, digestive tract) through prolonged or repeated exposure(category 1)

In humans, there is the description that inflammation was observed in respiratory, stomach and duodenum with dizziness, weakness as the effects of occupational exposure, in worker who was inhalation exposure to 700 ppm of this substance, 3 hours/day for 7 to 15 years(ACGIH (7th, 2001), DFGOT vol.7 (1996)). Even re-evaluation by ATSDR Addendum (2011), there is the reported that target organ by this substance exposure in humans, respiratory organs, gastrointestinal tract, nervous system are main. Based on the above mention, it was classified into category 1(central nervous system, respiratory organs, digestive tract).

Aspiration hazard : Not possible to classify because of insufficient data.

The calculated dynamic viscosity is 0.426mm²/sec and acetone is a ketone of under C13, however, there was not the animal data of chemical pneumonia, it was not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity : Acute aquatic toxicity : Out of category

Chronic aquatic toxicity : Out of category

Pimephales promelas LC50>100mg/L/96H

Persistence and degradability

: High biodegradability
96% by BOD

Bioaccumulative potential : Low or no bioconcentration or bioaccumulation potential in fish or shells.

Mobility in soil : It is expected to have very high mobility in soil. (Koc:2.4)

13. Disposal consideration

Residual disposal : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : Class 3(Flammable liquids) P. G. II

UN number : 1090

Marine regulation information

UN No. : 1090

Proper shipping name : ACETONE

Class : 3

Sub risk : -

Packing group : II

Marine pollutant : Not applicable

Aviation regulation information

UN No. : 1090

Proper shipping name : Acetone

Class : 3

Sub risk : -

Packing group : II

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References

Solvents Handbook, T, Asahara et al, Kodansha Scientific Ltd. (1976)

Handbook of dangerous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001)

Dangerous Properties of Industrial Materials, 6th ed. N. I. Sax Van Nostrand Reinhold Company (1984)

Handbook of Dangerous Substances Springer-Verlag Tokyo (1991)

Handbook of 16817 Chemical Products, The Chemical Daily Co. (2017)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.