

Safety Data Sheet

1. Chemical product and company identification

Product name : Organic solvent standard stock solution mix2

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section : Business Administration Department, Reagent Division
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Mail address : BC32@kanto.co.jp
Reference No : 31071

2. Hazards identification

GHS classification

Physical hazards	Flammable liquids	Category 1
Health hazards	Acute toxicity (inhalation:vapors)	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Carcinogenicity	Category 1A
	Reproductive toxicity	Category 1A
	Reproductive toxicity (effects on or via lactation)	Additional category
	Specific target organ toxicity (single exposure)	Category 1 (central nervous system, heart)
	Specific target organ toxicity (single exposure)	Category 2 (systemic toxicity, optic nerve)
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation)
	Specific target organ toxicity (repeated exposure)	Category 1 (central nervous system, cardiovascular, kidney)
	Specific target organ toxicity (repeated exposure)	Category 2 (respiratory organs, digestive tract, blood, nervous system)
Environmental hazards	Aquatic acute	Category 2
	Aquatic chronic	Category 2

Hazard pictograms



Signal word : Danger



Hazard statements	: Extremely flammable liquid and vapor Causes skin irritation Causes serious eye irritation Harmful if inhaled May cause respiratory irritation May cause drowsiness or dizziness May cause cancer May damage fertility or the unborn child May cause harm to breast-fed children Causes damage to organs (central nervous system, heart) May cause damage to organs (systemic toxicity, optic nerve) Causes damage to organs (central nervous system, cardiovascular, kidney) through prolonged or repeated exposure May cause damage to organs (respiratory organs, digestive tract, blood, nervous system) through prolonged or repeated exposure Toxic to aquatic life Toxic to aquatic life with long lasting effects
Precautionary statements	
Prevention	: Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take action to prevent static discharges. Do not breathe mist/vapors. Avoid contact during pregnancy and while nursing. Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	: IF ON SKIN: Wash with plenty of water. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water . IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER or doctor. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Collect spillage.
Storage	: Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.



Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Carbon disulfide	75.4	CS ₂	Listed	200-843-6	75-15-0

*Contains the following ingredients. Methanol 10500µg/mL, Acetone 47500µg/mL, Isopropyl alcohol 19700µg/mL, Methyl acetate 24300µg/mL, Dichloromethane 7000µg/mL, n-Hexane 5700µg/mL, Methyl ethyl ketone 23600µg/mL, Ethyl acetate 28800µg/mL, Isobutyl alcohol 6100µg/mL, 1-Butanol 3000µg/mL, Methyl isobutyl ketone 3300µg/mL, Toluene 3000µg/mL, Isobutyl acetate, n-Butyl acetate each 28500µg/mL, Ethylbenzene 3500µg/mL, m-Xylene, p-Xylene, o-Xylene each 8700µg/mL, Cyclohexanone 3200µg/mL, Ethylene glycol mono-n-butyl ether 4800µg/mL.

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. Get medical treatment.

First-aid measures after 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.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media : Water, dry sand, foam

Unsuitable extinguishing media : Dry chemicals and carbon dioxide extinguishers can not extinguish completely.

Firefighting instructions : Spray a large amount of water in order to float water upon the chemical and extinguish by shut off oxygen. .
Fight fire from windward.

Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : 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.



Environmental precautions

Environmental precautions : Attention should be given to avoid damage to the environment by flowing of spillage to rivers.

Methods and Equipment for Containment and Cleaning up

For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.
Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage**Handling**

Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.
Ventilate well at working places.
Use explosion-proof electric apparatus.

Precautions for safe handling : Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas.
Do not allow contact with oxidizing substances.

Storage

Storage conditions : Store in a freezer and tightly closed (below -20°C).
Material used in packaging/containers : Glass, fluorine resin, stainless steel.
Do not use vinyl chloride resin, acrylic resin, polystyrene etc.

8. Exposure controls / Personal protection equipment

Carbon disulfide	
ACGIH TWA	1 ppm
Remark (ACGIH)	Skin

Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

Protective equipment

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

Hand protection : Organic solvents resistant gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Liquid
Color : Colorless
Odor : Characteristic
pH : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : 46.225 ° C (as carbon disulfide)
Flash point : -30 ° C (C.C.) (as carbon disulfide)



Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable
Vapor pressure	: No data available
Relative density	: No data available
Density	: No data available
Relative gas density	: No data available
Solubility	: Water: Insoluble
Partition coefficient n-octanol/water (log Pow)	: No data available
Explosive limits (vol %)	: No data available
Viscosity, kinematic	: No data available
Particle characteristics	: No data available

10. Stability and reactivity

Reactivity	: Reacts with alcoholic alkali hydroxide to produce xanthogenate. Reacts with amines to produce dithiocarbamate.
Chemical stability	: Stable under normal conditions. It is gradually oxidized in the air.
Possibility of hazardous reactions	: May react violently when in contact with oxidizing substances.
Conditions to avoid	: Light, heat.
Incompatible materials	: Oxidizing substances.
Hazardous decomposition products	: Carbon monoxide, sulfur oxides, chlorine, hydrogen chloride.

11. Toxicological information

Acute toxicity (oral)	: No classification ATEmix>2000mg/kg
Acute toxicity (dermal)	: Classification not possible
Acute toxicity (inhalation)	: No classification (gas) Harmful if inhaled (vapor) *4.9% of the mixture consists of ingredient(s) of unknown toxicity. ATEmix=6901ppm Classification not possible (dust, mist)
Skin corrosion/irritation	: Causes skin irritation Carbon disulfide : Contact of human skin with the substance causes dermatitis and blisters. In rabbit skin irritation tests (exposure time is unknown), blisters and ulcer were observed on and under the skin. Thus, it was classified into category 2.
Serious eye damage/irritation	: Causes serious eye irritation Carbon disulfide : Based on the fact that plant workers who were exposed to the substance for 5-6 years developed burning sensation of the eyes and photophobia, the substance is considered an eye irritant. Thus, it was classified into category 2A.
Respiratory sensitization	: Classification not possible



Skin sensitization	: Classification not possible Cyclohexanone : Since the substance is on the Frosch contact allergen list, the substance was classified into category 1. However, the content of this product is below the cut-off value. No information on other ingredients.
Germ cell mutagenicity	: Classification not possible
Carcinogenicity	: May cause cancer Dichlorometane : IARC classified it into group 2A (probably carcinogenic to humans). Ministry of Health, Labor and Welfare added "bile duct carcinoma caused by activities exposed to the substance" to appended Table 1-2 (occupational disease list), which covers workers' compensation, in 2013 based on enforcement Ordinance of the Labor Standards Law. Thus, it was classified into category 1A. 4-Methyl-2-pentanone : The substance was classified into category 1B because of the increased occurrence of tumors including malignant tumors in 2 animal species (rats and mice) and sufficient evidence of carcinogenicity in animal experiments. Ethylbenzene : IARC classifies it as group 2B (possibly carcinogenic to humans). Based on the content, this product was classified into category 1A.
Reproductive toxicity	: May damage fertility or the unborn child May cause harm to breast-fed children Carbon disulfide : In epidemiological studies of female workers who were exposed to 37-56mg/m3 of the substance for more than a year, significantly increased incidences of menstrual disorder and pregnancy toxemia were observed, and carbon disulfide was detected from cord blood, milk of exposed workers and urine of breast-fed infants, which suggests transfer of the substance through placenta and milk. In addition, there are two other reports of similar results. Based on epidemiological studies of human occupational exposure, it was classified into category 1A with additional category of effects on lactation. In addition, toluene is classified into category 1A (effects of lactation), ethylbenzene is classified into category 1B, and acetone, 2-propanol, dichloromethane, hexane, p-xylene, cyclohexanone, and 2-n-butoxyethanol are classified into category 2.



STOT-single exposure : Causes damage to organs (central nervous system, heart)
May cause damage to organs (systemic toxicity, optic nerve)
May cause drowsiness or dizziness
May cause respiratory irritation
2-Propanol : From descriptions, acute poisoning symptoms of this substance in humans include central nervous system depression, irritation of the gastrointestinal tract, effects on the circulatory system such as hypotension, hypothermia, and arrhythmia, and adverse effects occur in the whole body. And inhalation exposure irritates the nose and throat, therefore it is irritating to the respiratory tract. From the above, it was classified into category 1 (central nervous system, systemic toxicity), category 3 (respiratory tract irritation).
Methyl acetate : In humans, by inhalation exposure to the vapour, there were reports of cough, sore throat, tightness of the chest, hypoesthesia, headache, dizziness, lassitude, unsteady gait, narcotic effects, loss of consciousness, somnolence, central nervous system depression, and as for optic nerve disorders, transient loss of binocular vision, bilateral atrophy of the optic nerve, and narrowing of visual field. In addition, by oral ingestion, there were reports of abdominal pain, nausea, vomiting, weakness, convulsions and dyspnea. As for experimental animals, by inhalation exposure of cats to the vapour at 56.1 mg/L, narcotic effects and dyspnea were observed but these subsequently disappeared. These findings in cats were observed exceeding the guidance value of category 2. From the above, it was classified into category 1 (optic nerve), category 3 (respiratory tract irritation, narcosis).
Carbon disulfide : Human studies have shown that in a short-term inhalation exposure test using volunteers, headache at 316ppm and above, dizziness at 1,138ppm, and severe headache and coma at 2,022-3,160 ppm were observed. In addition, in plant workers who were acutely exposed to 948-1,580ppm of the substance, signs of excitement, emotional lability, delirium, hallucination, delusion, and suicidal thoughts were observed, and 27 police officers/fire-fighters who were exposed to the substance in an explosion developed headache, dizziness, sore throat due to burns, dyspnea, and pain with respiration. Animal studies have shown that in rats exposed twice by inhalation for 4 hours to 4mg/L, which corresponds to category 1 guidance values, increases in catecholamine-induced myocardial necrosis and fibrosis were observed. Thus, it was classified into category 1 (central nervous system, heart) and category 3 (respiratory tract irritation, narcosis).
Based on the content, this product was classified into category 1 (central nervous system, heart), category 2 (systemic toxicity, nervous system), category 3 (respiratory tract irritation, narcosis).



STOT-repeated exposure	: Causes damage to organs (central nervous system, cardiovascular, kidney) through prolonged or repeated exposure May cause damage to organs (respiratory organs, digestive tract, blood, nervous system) through prolonged or repeated exposure Carbon disulfide : Human studies have shown that polyneuropathy, cerebral atherosclerosis, cerebral atrophy, irregular regional blood flow in the brain, cortical atrophy, multiple lesions suggestive of small infarctions in the basal ganglia and corona radiata, olivopontocerebellar atrophy, delayed peripheral nerve conduction velocity and decreased action potential, ischemic heart disease, myocardial infarction, nodular glomerular sclerosis, diffuse glomerular sclerosis, thickening of the basement membranes in the loop, Bowman's capsule and distal tubule were observed. Based on animal evidence of edema, hemorrhage, stroma proliferation, and vasodilation in the heart, central nervous system, cardiovascular, and kidney were considered to be target organs. Effects on animals were seen within the guidance value range of category 1. Thus, it was classified into category 1 (central nervous system, cardiovascular, kidney). In addition, acetone is classified into category 1 (central nervous system, respiratory system, digestive tract), 2-propanol is classified into category 1 (blood) and category 2 (respiratory organs, liver, spleen), and methyl acetate is classified into category 1 (optic nerve), and 2-butanone are classified into category 1 (nervous system), respectively. Based on the content, this product was classified into category 1 (central nervous system, cardiovascular, kidney) and category 2 (respiratory organs, digestive tract, blood, nervous system).
Aspiration hazard	: Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	: Toxic to aquatic life Daphnia magna EC50=2.1mg/L/48h (as carbon disulfide)
Aquatic chronic	: Toxic to aquatic life with long lasting effects

Persistence and degradability

No additional information available

Bioaccumulative potential

No additional information available

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	: Classification not possible
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13. Disposal considerations

Ecology - waste materials	: Combustion method : The chemical should be burn with oil in a iron container inside a chemical incinerator equipped with an afterburner and scrubber. Or entrust approved waste disposal companies with the disposal.
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<Note>

- *Use alkaline solution as cleaning liquid of a scrubber.
- *The temperature of a fire chamber in a incinerator set up more than 800°C in advance. Burn the product as atomizing combustion more than the pressure of 3kg/m2.
- *Carbon disulfide should be put water pressure upon.
- *A stainless check valve should be attached in a piping that is connected with a burner and carbon disulfide storage tank.

Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG) : 1131
 Proper Shipping Name (IMDG) : CARBON DISULPHIDE
 Packing group (IMDG) : I
 Transport hazard class(es) : 3 (6.1)

(IMDG)

Air transport(IATA)

UN-No. (IATA) : 1131
 Proper Shipping Name (IATA) : Carbon disulphide
 Packing group (IATA) : Not applicable
 Transport hazard class(es) : 3 (6.1)

(IATA)

Marine pollutant : Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollutant category : Y
 MFAG-No : 131

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
 Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd. (1976) .
 Handbook of Dangerous Substances Springer-Verlag Tokyo (1991) .
 Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa (2000) .
 NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

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.

