



Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: 2,4,6-Trinitrophenol alcohol solution

SDS No. : E0093E-2

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Safety Management Dept. of Chemicals

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

e-mail address: kagakuhinanzenkanri@kishida.co.jp

2. Hazards identification

GHS classification and label elements of the product**Classification of the substance or mixture****PHYSICAL AND CHEMICAL HAZARDS**

Flammable liquids: Category 3

HEALTH HAZARDS

Serious eye damage/eye irritation: Category 2B

Carcinogenicity: Category 1A

Reproductive toxicity: Category 1A

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

Specific target organ toxicity – single exposure: Category 3 (Narcosis)

Specific target organ toxicity – repeated exposure: Category 1 (liver)

Specific target organ toxicity – repeated exposure: Category 2 (CNS)

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Signal word: Danger

HAZARD STATEMENT

Flammable liquid and vapor

Causes eye irritation

May cause cancer

May damage fertility or the unborn child

May cause respiratory irritation

May cause drowsiness or dizziness

Causes damage to organs through prolonged or repeated exposure (liver)

May cause damage to organs through prolonged or repeated exposure (CNS)

PRECAUTIONARY STATEMENT**Prevention**

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

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.



Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media other than water for extinction.
Get medical advice/attention if you feel unwell.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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: Get medical advice/attention.

Storage

Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Flammable liquid. Vapor/air mixture may explode.

3. Composition/information on ingredients**Mixture/Substance selection:****Mixture**

Ingredient name:2,4,6,-Trinitrophenol

Content (%):0.71

Chemical formula:HOC₆H₂(NO₂)₃

Chemicals No, Japan:3-823

CAS No.:88-89-1

MW:229.11

ECNO:201-865-9

Ingredient name:Ethanol

Content (%):44

Chemical formula:C₂H₅OH

Chemicals No, Japan:2-202

CAS No.:64-17-5

MW:46.07

ECNO:200-578-6

Ingredient name:Water

Content (%):56

Chemical formula:H₂O

CAS No.:7732-18-5

MW:18.02

ECNO:231-791-2

Note : The figures shown above are not the specifications of the product.



4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.

If skin irritation or rash occurs: Get medical advice/attention.

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: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire/flame resistant/retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.



7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Polyethylene

8. Exposure controls/personal protection

Control parameters

Adopted value

(2,4,6,-Trinitrophenol)

ACGIH(1992) TWA: 0.1mg/m³ (Skin sens; dermatitis; eye irr)

(Ethanol)

ACGIH(2008) STEL: 1000ppm (URT irr)

OSHA-PEL

(Ethanol)

TWA: 1000ppm, 1900mg/m³

(2,4,6,-Trinitrophenol)

TWA: 0.1mg/m³

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection



- Wear respiratory protection.
- Hand protection
 - Wear protective gloves.
- Eye protection
 - Wear eye/face protection.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

- Physical state: Liquid
- Color: Pale yellow
- Odor: Characteristic odor
- Melting point/Freezing point data is not available.
- Boiling point or initial boiling point data is not available.
- Boiling range data is not available.
- Flammability (gases, liquids and solids) data is not available.
- Lower and upper explosion limit/flammability limit data is not available.
- Flash point: (reference)25°C
- Auto-ignition temperature data is not available.
- Decomposition temperature data is not available.
- pH data is not available.
- Kinematic viscosity data is not available.
- Solubility:
 - Solubility in water: Soluble
 - n-Octanol/water partition coefficient data is not available.
 - Vapor pressure data is not available.
 - Density and/or relative density: 0.92g/cm³
 - Relative vapor density (Air=1) data is not available.
 - No Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(2,4,6-Trinitrophenol)

May decompose on shock, friction or concussion. May explode on heating. Mixtures with copper, lead, mercury, zinc and other metals are shock-sensitive. On combustion, forms toxic carbon and nitrogen oxides. Reacts with oxidants and reducing agents. (ICSC 0316) (Ethyl alcohol)

The vapour mixes well with air, explosive mixtures are easily formed.

Reacts slowly with calcium hypochlorite, silver oxide and ammonia. This generates fire and explosion hazard. Reacts violently with strong oxidants such as nitric acid, silver nitrate, mercuric nitrate and magnesium perchlorate. This generates fire and explosion hazard. (ICSC 0044)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Oxidizing agents, Reducing agents, Calcium hypochlorite, Silver oxide, Ammonia

Hazardous decomposition products

Carbon oxides, Nitrogen oxides



11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(2,4,6,-Trinitrophenol)

rat LD50=200mg/kg (MOE risk assessment vol.3, 2004)

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation

[GHS Cat. Japan, base data]

(2,4,6,-Trinitrophenol)

rabbit mild irritation (SIDS, 2012)

(Ethanol)

rabbit recover within 7 days (ECETOC TR No.48(2), 1998 et al)

Sensitization

Skin sensitization

[GHS Cat. Japan, base data]

(2,4,6,-Trinitrophenol)

cat. 1; ACGIH, 2001

Mutagenic effects data is not available.

Carcinogenicity

[GHS Cat. Japan, base data]

(Ethanol)

cat.1A; (IARC, 2010)

(Ethanol)

IARC-Gr.1 : Carcinogenic to humans

(Ethanol)

ACGIH-A3(2008) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

Reproductive toxicity

[GHS Cat. Japan, base data]

(Ethanol)

cat. 1A; human : PATTY 6th, 2012

STOT

STOT-single exposure

[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

(2,4,6,-Trinitrophenol)

respiratory tract irritation (MOE risk assessment vol.3, 2004)

(Ethanol)

respiratory tract irritation (PATTY 6th, 2012)

[cat.3 (drow./dizz.)]

[GHS Cat. Japan, base data]

(Ethanol)

narcotic effect (PATTY 6th, 2012; SIDS, 2005)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Ethanol)

liver (DFGOT vol.12, 1999)

[cat.2]

[GHS Cat. Japan, base data]

(Ethanol)



CNS (HSDB, Access on Jun. 2013)

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Ethanol)

Algae (Chlorella) EC50=1000mg/L/96hr (SIDS, 2005)

(2,4,6,-Trinitrophenol)

Crustacea (Daphnia magna) EC50=85mg/L/48hr (SIDS, 2010)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Ethanol)

Crustacea (Ceriodaphnia reticulata) NOEC=9.6mg/L/10days (SIDS, 2005)

(2,4,6,-Trinitrophenol)

Crustacea (Daphnia magna) NOEC=5mg/L/21 days (SIDS, 2010)

Water solubility

(Ethanol)

miscible (ICSC, 2000)

(2,4,6,-Trinitrophenol)

1.4 g/100 ml (ICSC, 2008)

Persistence and degradability

(Ethanol)

Degrade rapidly (BOD_Degradation : 89% (Registered chemicals data check & review, 1993))

(2,4,6,-Trinitrophenol)

Not degrade rapidly (BOD_Degradation : 23% (Registered chemicals data check & review, 2003))

Bioaccumulative potential

(Ethanol)

log Pow=-0.32 (ICSC, 2000)

(2,4,6,-Trinitrophenol)

log Pow=2.03 (ICSC, 2008)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No.: 1170

Proper Shipping Name :

ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

Class or division : 3

Packing group : III

ERG GUIDE No.: 127



Special provisions No.: 144; 223
IMDG Code (International Maritime Dangerous Goods Regulations)
UN No.: 1170
Proper Shipping Name :
ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
Class or division : 3
Packing group : III
Special provisions No.: 144; 223
IATA Dangerous Goods Regulations
UN No.: 1170
Proper Shipping Name :
ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
Class or division : 3
Hazard labels : Flamm.liquid
Packing group : III
Special provisions No.: A3; A58; A180
Environmental hazards
MARPOL Annex III – Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no
MARPOL Annex V – Prevention of pollution by garbage discharge
Carcinogenicity: cat.1, 1A, 1B
Ethanol
Reproductive toxicity: cat.1, 1A, 1B
Ethanol
Specific target organ toxicity – repeated exposure: cat.1
Ethanol
Transport in bulk according to Annex II of MARPOL73/78 and IBC Code
Noxious Liquid ; Cat. Z
Ethanol
Non Noxious Liquid ; Cat. OS
Water

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
US Federal Regulations
Chemicals listed in TSCA Inventory
Ethanol; 2,4,6,-Trinitrophenol; Water
Other regulatory information
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling
Flam. Liq. 3: H226 Flammable liquid and vapor
Eye Irrit. 2B: H320 Causes eye irritation
Carc. 1A: H350 May cause cancer
Repr. 1A: H360 May damage fertility or the unborn child
STOT SE 3: H335 May cause respiratory irritation
STOT SE 3: H336 May cause drowsiness or dizziness
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure
Reference Book
Globally Harmonized System of classification and labelling of chemicals, (6th ed., 2015), UN



Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (61th Edition) 2020
Classification, labelling and packaging of substances and mixtures (Table 3 ECNO6182012)
2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2020 TLVs and BEIs. (ACGIH)
<http://monographs.iarc.fr/ENG/Classification/index.php>
Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2018).