Safety Data Sheet

1. Product and company identification

Product name : AQUALYTE Water Standard 0.1
Part No. : D312138-1

Company information

Name of supplier : HIRANUMA Co., Ltd.
Address : 1739 Motoyoshida, Mito, Ibaraki, 310-0836, JAPAN
Name of section : Quality assurance department
Telephone number : +81-29-247-7343
Facsimile number : +81-29-240-0381
Mail address : info-f2@hiranuma.com
Name of Manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JAPAN
Recommended use : For research use only
Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards
Flammable liquids : Category 3
Health hazards
Skin corrosion/Irritation : Category 2
Serious eye damage/eye irritation
: Category 2B
Specific target organ toxicity (single exposure)
: Category 3 (narcosis) ,
Category 3 (respiratory tract irritation.)
Specific target organ toxicity (repeated exposure)
: Category 1 (central nervous system, respiratory organs)
Aspiration hazard : Category 1
Environmental hazards
Aquatic acute : Category 2
Aquatic chronic : Category 2

Hazard pictograms

Signal word : Danger

Hazard statements : Flammable liquid and vapor
May be fatal if swallowed and enters airways
Causes skin and eye irritation
May cause respiratory irritation
May cause drowsiness or dizziness
Causes damage to organs (central nervous system, respiratory organs) through prolonged or repeated exposure
Toxic to aquatic life
Toxic to aquatic life with long lasting effects

Precautionary statements

Prevention : Keep away from heat, hot surfaces, sparks, open flame and other ignition sources. No smoking.
Keep containers 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.
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 SWALLOWED: Immediately call a POISON CENTER or doctor.
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.
Call a POISON CENTER or doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Do not induce vomiting.
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

Substance/Mixture

: Substance

Synonyms : 1,3,5-Trimethylbenzene

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Mesitylene	100	C9H12	Listed	203-604-4	108-67-8

4. First aid measures

First aid measures

After inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

Ater skin contact : Wash the affected areas under running water.

After eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.

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.

Most Important Symptoms/Effects

Symptoms/effects : Inhalation causes confusion, cough, dizziness, lethargy, headache, throat ache, vomiting.

5. Fire fighting measures

Suitable extinguishing media

: Dry chemical powder, carbon dioxide, dry sand, foam

Unsuitable extinguishing media

: Water spray

Firefighting instructions

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

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.

Prevention Measures for Secondary Accidents

: 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.

Precautions for safety handling

: Avoid formation of vapor and aerosols.
Do not allow contact with oxidizing substances.

Storage

Storage condition : Store in refrigerator and tightly closed. (0-6℃).

Materials used in packing/ containers

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

8. Exposure control / Personal protection equipment

ACGIH TWA	10 ppm

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

Hands protection : Impervious protective gloves

Eyes protection : Safety goggles

Skin and body protection

: Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Liquid

Color : Colorless

Odor : Aromatic

pH : No data available

Melting point : -44.72 °C

Freezing point : No data available

Boiling point : 164.716 °C

Flash point : 50 °C (C.C.)

Auto-ignition temperature

: 550 °C

Decomposition temperature

: No data available

Flammability : Flammable

Vapor pressure : 2hPa (20 °C)

Relative density : No data available

Density : 0.862 - 0.867 g/cm³ (20 °C)

Relative gas density : 4.15

Solubility : Water ; Insoluble
Organic solvents; Soluble in ethanol, diethyl ether.

Partition coefficient n-octanol/water (log Pow)

: 3.42

Explosive limits (vol %)

: No data available

Viscosity, kinematic : 0.84 mm²/s (20 °C)

Particle characteristics

: No data available

10. Stability and reactivity

Reactivity : Oxidation with potassium permanganate produces ubithenic acid and trimesic acid.
When boiled with aluminum chloride, the methyl group is transferred to produce m-xylene, zulene, isozulene etc..

Chemical stability : Stable under normal conditions.

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

11. Toxicological information

Acute toxicity (oral) : No classification
rat LD50=5000mg/kg

Acute toxicity (dermal) : Classification not possible

Acute toxicity (inhalation)

: No classification (gas)
Classification not possible (vapor)

No classification (dust, mist)
rat LC50=24mg/L/4h

Skin corrosion/irritation

: Causes skin irritation (category2)
In the skin irritation test (OECD TG 404) in rabbits, very slight redness was observed from 1 hour after application and became moderate to severe after 144 hours. In addition, it has been reported that slight edema was observed from 1 hour, but disappeared after 144 hours. Thus, it was classified into category2.

Serious eye damage/eye irritation

: Causes eye irritation (category2B)
In an eye irritation study in rabbits (24-hour application), slight irritation was reported in the eyes. Thus, it was classified into category 2B.

Respiratory sensitization

: Classification not possible
Besides, among 37 individuals exposed for 7 years to vapors of a mixed solvent containing the isomer of the substance, 70% of humans exposed to the highest concentration reported onset of asthmatic bronchitis, although the possibility of benzene contamination has not been ruled out.

Skin sensitization : Classification not possible

Germ cell mutagenicity

: No classification
As for in vivo, both the micronucleus test with mouse bone marrow cells and the sister chromatid exchange test with mouse bone marrow cells were reported to be negative. Subsequent evaluation revealed negative results in the micronucleus test in mice, whereas the sister chromatid exchange test results were judged to be positive at higher doses. However, the maximum intraperitoneal dose reached 80% of LD50 level, and the maximum increase in SCE frequency was also reported to be only 1.5 times that of the control group. As for in vitro, the bacterial reverse mutation assay was negative with or without metabolic activity. EPA concluded that both isomers of trimethylbenzene are poorly evidenced to be genotoxic.

Carcinogenicity : Classification not possible

Reproductive toxicity : Classification not possible
In a developmental toxicity study in rats following inhalation exposure, no developmental toxicity was reported. No developmental effects were observed, but there are no data on effects on fecundity.

Specific target organ systemic toxicity - single exposure
: May cause drowsiness or dizziness (category 3)
May cause respiratory irritation (category 3)
In a single inhalational exposure study in 5000-9000 ppm, central nervous system depression has been reported. In a single inhalation exposure study in rats, 2240 ppm was extended from anaesthetic effects to respiratory failure, resulting in 4/16 deaths. In addition, it has been reported that pulmonary congestion was observed at necropsy. Thus, it was classified into category 3 (respiratory tract irritation, narcosis).

Specific target organ systemic toxicity - repeated exposure
: Cause damage to organs (central nervous system, respiratory organs) through prolonged or repeated exposure (category 1)
A study was conducted on painters exposed for several years to thinners containing >30% of the substance and >50% of the isomers of the substance. High rates of headache, fatigue, dizziness, and numbness were seen in these workers, bronchitis with asthma was common, and gastrointestinal symptoms were also seen in many workers. In addition, blood effects were observed, but it has been reported that benzene mixed with solvent may be the cause. In a 4-week inhalation exposure study in rats, it was reported that the duration of passive avoidance behavior was shortened and the number of active avoidance behavior was increased in 25 ppm and above. Thus, it was classified into category 1 (central nervous system, respiratory organs).

Aspiration hazard : May be fatal if swallowed and enters airways (category 1)
It has been reported that persistence of this substance in the lungs may cause chemical pneumonitis. The kinematic viscosity at 20℃ and 50℃ has been reported to be 0.843 and 0.630 mm2/s, respectively.

12. Ecological information

Ecotoxicity

Aquatic acute : Toxic to aquatic life (Category 2)
Daphnia magna LC50=6mg/L/48h
Aquatic chronic : Toxic to aquatic life with long lasting effects (Category 2)
Daphnia magna NOEC=0.4mg/L/21-day

Persistence and degradability

Not readily biodegradable

BOD : 0%

Bioaccumulative potential

Low bioconcentration

BCF : 23-342 (150μg/L), 42-328 (15μg/L)

Mobility in soil

Low mobility

Koc : 602

Hazardous to the ozone layer

Ozone : Classification not possible

13. Disposal consideration

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

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) : 2325

Proper shipping name (IMDG)
: 1,3,5-TRIMETHYLBENZENE

Packing group (IMDG)
: Ⅲ

Transport hazard class(es) (IMDG)
: 3

Air transport (IATA)

UN-No. (IATA) : 2325

Proper shipping name (IATA)

: 1,3,5-Trimethylbenzene

Packing group (IATA)

: Ⅲ

Transport hazard class(es) (IATA)

: 3

Marine pollutant : Applicable

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

Pollutant category : X

MFAG-No : 129

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

References

1) Company data on file (SDS provided by manufacturer)

2) 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 concentrations or ranges of concentrations shown in "3. Composition/Information on ingredients" are examples calculated based on the amounts used at the time of manufacture and do not guarantee the concentrations in the product. The total value may not be 100% due to fractional processing. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.