

Safety Data Sheet

1. Product and company identification

Product name : AQUALYTE KF 3
Part No. : D312132-1
Name of manufacturer : HIRANUMA Co., Ltd.
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Name of section : Quality assurance department
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2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Flammable liquids : Out of category

Pyrophoric liquids : Out of category

Human health hazard

Acute toxicity (oral)

: Out of category

Acute toxicity (dermal)

: Out of category

Acute toxicity (inhalation : vapors)

: Category 3

Skin corrosion · Irritation

: Category 1C

Serious eye damage · Eye irritation

: Category 1

Skin sensitization : Category 1

Reproductive toxicity

: Category 2

Specific target organ systemic toxicity (single exposure)

: Category 2

Specific target organ systemic toxicity (repeated exposure)

: Category 1, Category 2

Environmental hazard

Hazardous to the aquatic environment—acute hazard

: Category 2

Hazardous to the aquatic environment—chronic hazard

: Category 2

Pictogram or symbol



Signal word : Danger

Hazard statement : Toxic if inhaled

Causes severe skin burns and eye damage

Causes serious eye damage

May cause an allergic skin reaction

Suspected of damaging fertility or the unborn child

May cause damage to organs (respiratory organs, nervous system)

Causes damage to organs (thyroid gland) through prolonged or repeated exposure

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

Toxic to aquatic life

Toxic to aquatic life with long lasting effects

Cautions

Safety measurements

: Do not handle until all safety precautions have been read and understood.

Do not breathe dust, mist, and vapor.

Use only in a well-ventilated area.

Avoid release to the environment.

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

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

Wear appropriate protective gloves, glasses, clothing, face shield, or mask.

Wash protective equipment thoroughly after use.

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. Immediately get medical treatment.
	If swallowed: Rinse mouth, do not induce vomiting. Immediately get medical treatment.
	If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.
	If on skin : Remove contaminated clothing and the substance. Immediately get medical treatment.
	If exposed, get medical treatment.
	Get medical treatment, if you feel unwell.
	Collect leakage
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

: Mixture

Chemical name or commercial name

: Mixed solution contains below substances.

Ingredients and composition

: 2-(2-Ethoxyethoxy)ethanol 65-75%

Propylene glycol 3-8%

Imidazole 5-15%

Sulfur dioxide 3-8%

Iodine 5-15%

Chemical formula

: 2-(2-Ethoxyethoxy)ethanol $\text{HOCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$

Propylene glycol $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{OH}$

Imidazole $\text{C}_3\text{H}_4\text{N}_2$

Sulfur dioxide SO_2

Iodine I_2

CAS No.

: 2-(2-Ethoxyethoxy)ethanol 111-90-0

Propylene glycol 57-55-6

Imidazole 288-32-4

Sulfur dioxide 7446-09-5

Iodine 7553-56-2

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 : Rinse mouth with water. Give the victim one or two glasses of water or milk, do not induce vomiting. Get medical treatment as soon as possible.
- Protection for first aid person
: Savers wear proper protective equipment like rubber gloves, goggles.
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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.
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6. Accidental release measures

- Cautions for personnel
: Wear proper equipment and avoid contact with skin and inhalation of vapor. Keep personnel removed from and upwind of fire. Shut off all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.
- Cautions for environment
: Attention should be given not to cause damage to the environment by flowing of spillage to rivers. In case of the dilution of copious water, do not cause damage to the

- environment by untreated wastewater.
- Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and flush residual area with copious amounts of water.
- Prevention of second accident
: Remove nearby sources of ignition and prepare extinguishing media.
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7. Cautions of handling and storage

Handling

Engineering measures

- : Wear proper equipment not to contact with skin or inhale the vapor. Fire is strictly prohibited.
Ventilate well at working places.

Cautions for safety handling

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

Cautions

- : Do not 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 polyvinyl chloride resin, polystyrene.
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8. Exposure control/Personal protection

Engineering measures

- : Use only with adequate ventilation and in closed systems.

Control parameters

- ACGIH(2009) : 0.01ppm(as Iodine)(TLV-TWA)
0.1ppm(Upper limit)(as Iodine)(TLV-STEL)
0.25ppm(as Sulfur dioxide)(TLV-STEL)

Protective equipment

Respiration protective equipment

- : If necessary, wear chemical cartridge respirator with an organic vapor cartage

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 : Dark brown

Odor : Acrid odor

Boiling point : Not available

Melting point : Not available

Flash point : 111 °C

Auto-ignition point : Not available

Explosion characteristics

Explosion limit : Upper limit : 23.5vol% lower limit : 1.2vol%(as
2-(2-Ethoxyethoxy)ethanol)

Vapor pressure : Not available

Density : 1.06g/cm³ (20 °C)

Solubility

Solubility in solvents

: Water ; Soluble

10. Stability and reactivity

Stability : Stable under normal usage.

Reactivity : May react with oxidizing substances.

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

Toxic if inhaled (vapor) (category 3)

Inhalation (dust, mist) : Not possible to classify because of
insufficient data.

(as 2-(2-Ethoxyethoxy)ethanol)

rat oral LD50=5500mg/kg

rabbit skin LD50=8500mg/kg

(as Propylene glycol)

rat oral LD50>20g/kg

rabbit skin LD50=20800mg/kg

(as Imidazole)

rat oral LD50=960mg/kg

(as Iodine)

rat oral LD50=315mg/kg

rat skin LD50=3333mg/kg

rat inhalation LC50=35ppm/4H(vapor)

Skin corrosiveness : Causes severe skin burns and eye damage(category 1C)
Since imidazole causes corrosivity to the skin, it was classified into category 1C.

Irritation to skin, eyes

: Causes serious eye damage (category 1)
Since the solution causes severe irritation to the eyes, it was classified into category 1.

Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.
May cause an allergic skin reaction (category 1)
Iodine is listed in the 2nd skin group of the sensitization substance of Recommendation of Acceptable Concentration of Japanese Society for Occupational Health.

Mutagenicity : Not possible to classify because of insufficient data.

Carcinogenic effects : Not possible to classify because of insufficient data

Effects on the reproductive system

: Suspected of damaging fertility or the unborn child(category 2)
Since 2-(2-ethoxyethoxy)ethanol may cause reproductive and developmental toxicity, the classification is set to category 2.

Specific target organ systemic toxicity single exposure

: May cause damage to organs (respiratory organs, nervous system)(category 2)

It is unlikely that the product generates sulfur dioxide. Based on the evidence that in the inhalation exposure test of sulfur dioxide using guinea pigs dogs, rabbits, and rats, airway mucosa irritation, increased airway resistance and respiratory ciliary loss are seen by the concentration of the guidance value of category 1, and that decreased respiratory function, such as an increase in airway resistance was seen also in the inhalation

exposure test in humans. the classification is set to category 1 (respiratory organs).

And since imidazole may cause nervous effect, it was classified into category 2(nervous system).

Thus, the product was classified into category 2 (respiratory organs, nervous system), taking into account the concentrations of sulfur dioxide and imidazole.

Specific target organ systemic toxicity repeated exposure

: Cause damage to organs (thyroid gland) through prolonged or repeated exposure(category 1)

May cause damage to organs (respiratory organs) through prolonged or repeated exposure(category 2)

It is unlikely that the product generates sulfur dioxide. Based on the evidence that in the inhalation exposure test of sulfur dioxide using rats, and guinea pigs, pneumonia and bronchitis were observed with the concentration in category 1 guidance value range, it was classified into category 1(respiratory organs). And based on the description that iodine may cause thyroid disease (hypothyroidism, hyperfunction, or thyroiditis) is caused by ingestion in human, the classification is set to category 1 (thyroid gland). Thus, the product was classified into category 1 (thyroid gland) and category 2 (respiratory organs), taking into account the concentrations of sulfur dioxide and iodine.

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

12. Ecological information

Ecotoxicity

Fish toxicity : Toxic to aquatic life (category 2)
 Toxic to aquatic life with long lasting effects (category 2)
 (as iodine)
 Daphnia magna LC50=0.16mg/L/48H

Rediualbility and degradability

: Not available

Bioaccumulative potential

: Not available

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 8(Corrosive substances) P. G. III

UN number : 1760

Marine regulation information

UN No. : 1760

Proper shipping name

: CORROSIVE LIQUID, N.O.S.

Class : 8

Sub risk : -

Packing group : III

Marine pollutant : Not applicable

Aviation regulation information

UN No. : 1760

Proper shipping name

: Corrosive liquid, n.o.s.

Class : 8

Sub risk : -

Packing group : III

15. Regulatory information

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

16. Other information

References

- 1) Company data on file (SDS provided by manufacturer)
- 2) NITE: 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, and it has the same required elements on the Material Safety Data Sheet(MSDS) which is prepared based on JIS Z7250:2010.