Printing date 05/16/2024

Reviewed on 05/16/2024

1 Identification

- · Product identifier
- · Trade name: Karl Fischer Titrant Hydranal® Composite 2.5 mg/ml Certified
- · Article number: LY377
- · Details of the supplier of the safety data sheet · Manufacturer/Supplier: Aqua Solutions, Inc. 6913 Highway 225

DEER PARK, TX 77536 USA 800-256-2586

- · Information department: Technical Coordinator Sherman Nelson shermann@aquasolutions.org Technical Coordinator Sherman Nelson shermann@aquasolutions.org
- Emergency telephone number: Chemtrec: 800-424-9300 Canutec: 613-996-6666



Classification of the substance or mixture	
GHS06 Skull and crossbones	
Acute Toxicity - Oral 3	H301 Toxic if swallowed.
Acute Toxicity - Dermal 3	H311 Toxic in contact with skin.
Acute Toxicity - Inhalation 3	H331 Toxic if inhaled.
GHS08 Health hazard	
Carcinogenicity 2	H351 Suspected of causing cancer.
Toxic to Reproduction 1A	H360 May damage fertility or the unborn child.
Specific Target Organ Toxicity - Single Exposure 1	H370 Causes damage to the central nervous system an the visual organs.
Specific Target Organ Toxicity - Repeated Exposure 1	H372 Causes damage to organs through prolonged or repeated exposure.
GHS05 Corrosion	
Skin Corrosion 1A	H314 Causes severe skin burns and eye damage.
Eye Damage 1	H318 Causes serious eye damage.
Flammable Liquids 4	H227 Combustible liquid.

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Reactivity = 0

(Contd. of page 1) · Hazard pictograms GHS05 GHS06 GHS08 · Signal word Danger · Hazard-determining components of labeling: Methanol Iodine *DEA regulated item Imidazole, Certified 2-methylimidazole Sulfur Dioxide · Hazard statements Combustible liquid. Toxic if swallowed, in contact with skin or if inhaled. Causes severe skin burns and eye damage. Suspected of causing cancer. May damage fertility or the unborn child. Causes damage to the central nervous system and the visual organs. Causes damage to organs through prolonged or repeated exposure. · Precautionary statements Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. *Keep away from flames and hot surfaces. – No smoking.* Do not breathe dusts or mists. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Immediately call a poison center/doctor. Specific treatment (see on this label). If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Get medical advice/attention if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use CO2, powder or water spray to extinguish. Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. · Classification system: · NFPA ratings (scale 0 - 4) Health = 3Fire = 3

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· HMIS-ratings (scale 0 - 4)

· Other hazards

· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:		
CAS: 67-56-1	Methanol	50.0%
	Diethylene glycol monoethyl ether	25.0%
CAS: 7553-56-2	Iodine *DEA regulated item	7.0%
CAS: 288-32-4	Imidazole, Certified	6.0%
	2-methylimidazole	6.0%
CAS: 7446-09-5	Sulfur Dioxide	6.0%

4 First-aid measures

· Description of first aid measures

• General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

• After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

• After skin contact: Immediately wash with water and soap and rinse thoroughly.

- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:

Do not induce vomiting; immediately call for medical help.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

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5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents:
- CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- \cdot Special hazards arising from the substance or mixture
- During heating or in case of fire poisonous gases are produced.
- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

	utions, protective equipment and emergency procedures ry protective device.	
-	equipment. Keep unprotected persons away.	
Environmental	precautions:	
Do not allow pro	oduct to reach sewage system or any water course.	
Inform respectiv	e authorities in case of seepage into water course or sewage system.	
Dilute with plent	ty of water.	
Do not allow to	enter sewers/ surface or ground water.	
	aterial for containment and cleaning up:	
Absorb with liqu	id-binding material (sand, diatomite, acid binders, universal binders, sawdust).	
Use neutralizing	agent.	
Dispose contami	inated material as waste according to section 13.	
Ensure adequate	e ventilation.	
Reference to oth	ner sections	
See Section 7 for	r information on safe handling.	
See Section 8 for	r information on personal protection equipment.	
See Section 13 fe	or disposal information.	
Protective Action	n Criteria for Chemicals	
PAC-1:		
CAS: 67-56-1	Methanol	530 ppm
CAS: 111-90-0	Diethylene glycol monoethyl ether	75 ppm

CAS: 67-56-1	Methanol	530 ppm
CAS: 111-90-0	Diethylene glycol monoethyl ether	75 ppm
CAS: 7553-56-2	Iodine *DEA regulated item	0.1 ppm
CAS: 288-32-4	Imidazole, Certified	0.66 mg/m ²
CAS: 7446-09-5	Sulfur Dioxide	0.20 ppm
· PAC-2:		
CAS: 67-56-1	Methanol	2,100 ppm
CAS: 111-90-0	Diethylene glycol monoethyl ether	100 ppm
CAS: 7553-56-2	Iodine *DEA regulated item	0.5 ppm
CAS: 288-32-4	Imidazole, Certified	7.3 mg/m ³
CAS: 7446-09-5	Sulfur Dioxide	0.75 ppm
· PAC-3:		
CAS: 67-56-1	Methanol	7200* ppm
CAS: 111-90-0	Diethylene glycol monoethyl ether	450 ppm
CAS: 7553-56-2	Iodine *DEA regulated item	5 ppm
CAS: 288-32-4	Imidazole, Certified	44 mg/m ³
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CAS: 7446-09-5 Sulfur Dioxide

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30 ppm

7 Handling and storage

· Handling:

- · Precautions for safe handling
- Ensure good ventilation/exhaustion at the workplace.
- *Open and handle receptacle with care.*
- Prevent formation of aerosols.
- · Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

CAS:	67-56-1 Methanol	
PEL	Long-term value: 260 mg/m ³ , 200 ppm	
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin	
TLV	Short-term value: 250 ppm Long-term value: 200 ppm Skin; BEI	
CAS:	111-90-0 Diethylene glycol monoethyl ether	
WEEL	Long-term value: 25 ppm	
CAS:	7553-56-2 Iodine *DEA regulated item	
PEL	Ceiling limit value: 1 mg/m ³ , 0.1 ppm	
REL	Ceiling limit value: 1 mg/m ³ , 0.1 ppm	
TLV	Long-term value: 0.01* mg/m³, 0.01* ppm *inh. fraction+vapor; Skin, A4	
CAS:	7446-09-5 Sulfur Dioxide	
PEL	Long-term value: 13 mg/m ³ , 5 ppm	
REL	Short-term value: 13 mg/m³, 5 ppm Long-term value: 5 mg/m³, 2 ppm	
TLV	Short-term value: 0.25 ppm A4	
	1	(Contd. on page

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	CAS: 67-56-1 Methanol
E	BEI 15 mg/L
	LD50 Intraperitoneal: urine
	Time: end of shift
	LD50: Methanol (background, nonspecific)
· A	Additional information: The lists that were valid during the creation were used as basis.
	Exposure controls
	Personal protective equipment:
	General protective and hygienic measures:
	Keep away from foodstuffs, beverages and feed.
	mmediately remove all soiled and contaminated clothing.
	<i>Wash hands before breaks and at the end of work.</i>
	Store protective clothing separately.
	Avoid contact with the eyes.
	Avoid contact with the eyes and skin.
	Breathing equipment:
	'n case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure
	espiratory protective device that is independent of circulating air.
·ŀ	Protection of hands:
	The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
L	Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ chemical mixture.
	Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation Material of gloves
v	The selection of the suitable gloves does not only depend on the material, but also on further marks of quality varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistanc he glove material can not be calculated in advance and has therefore to be checked prior to the application.
	Penetration time of glove material
7	The exact break through time has to be found out by the manufacturer of the protective gloves and has to observed.
	E ye protection: Safety glasses
	Tightly sealed goggles
· E	Body protection: Protective work clothing

- Information on basic physical and chemical properties
 General Information
- · Appearance:
- Form:

Liquid

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	(Contd. of page
Color:	Dark brown
· Odor:	Characteristic
• Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	-10 °C (14 °F)
· Flash point:	93 °C (199.4 °F)
· Flammability (solid, gaseous):	Not applicable.
• Auto igniting:	190 °C (374 °F)
• Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Not determined.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	44 Vol %
· Vapor pressure at 20 °C (68 °F):	128 hPa (96 mm Hg)
· Density at 20 °C (68 °F):	1.17 g/cm ³ (9.76365 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
\cdot Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	er): Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	75.0 %
VOC content:	75.00 %
	877.5 g/l / 7.32 lb/gal
Solids content:	30.0 %
• Other information	No further relevant information available.

10 Stability and reactivity

• *Reactivity* No further relevant information available.

· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.

• Incompatible materials: No further relevant information available.

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Safety Data Sheet acc. to OSHA HCS

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• Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

• Acute toxicity:

· LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

 Oral
 LD50
 189 mg/kg

 Dermal
 LD50
 578 mg/kg

 Inhalative
 LC50/4h
 4.69 mg/l

· Primary irritant effect:

• on the skin: Strong caustic effect on skin and mucous membranes.

 \cdot on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

• Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Toxic

- Corrosive
- Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
CAS: 693-98-1	2-methylimidazole	2B
CAS: 7446-09-5	Sulfur Dioxide	3
· NTP (National T	Toxicology Program)	
None of the ingre	dients is listed.	
· OSHA-Ca (Occu	pational Safety & Health Administration)	
None of the ingre	dients is listed.	

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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· Results of PBT and vPvB assessment

· **PBT:** Not applicable.

· vPvB: Not applicable.

• Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:

• Recommendation: Disposal must be made according to official regulations.

• *Recommended cleansing agent:* Water, if necessary with cleansing agents.

· UN-Number · DOT, IMDG, IATA	UN1993
	0.11//0
· UN proper shipping name · DOT	Flammable liquids, n.o.s. (Methanol, Diethylene glycol monoethy
-	ether)
· IMDG, IATA	FLAMMABLE LIQUID, N.O.S. (Methanol, Diethylene glyco monoethyl ether)
· Transport hazard class(es)	
·DOT	
RAMARKE LODO	
· Class	3 Flammable liquids
· Label	3
· IMDG, IATA	
· Class	3 Flammable liquids
· Label	3
· Packing group · DOT, IMDG, IATA	111
• Environmental hazards:	
· Marine pollutant:	No
• Special precautions for user • EMS Number:	Warning: Flammable liquids F-E,S-E
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· Stowage Category	A
• Transport in bulk according to Annex . MARPOL73/78 and the IBC Code	II of Not applicable.
· UN ''Model Regulation'':	UN 1993 FLAMMABLE LIQUID, N.O.S. (METHANOL, DIETHYLENE GLYCOL MONOETHYL ETHER), 3, III

15 Regulatory information

Sara	
Section 355 (extremely hazardous substances):	
CAS: 7446-09-5 Sulfur Dioxide	
Section 313 (Specific toxic chemical listings):	
CAS: 67-56-1 Methanol	
CAS: 111-90-0 Diethylene glycol monoethyl ether	
TSCA (Toxic Substances Control Act):	
Methanol	ACTIV
Diethylene glycol monoethyl ether	ACTIV
Iodine *DEA regulated item	ACTIV
Imidazole, Certified	ACTIV
2-methylimidazole	ACTIV
Sulfur Dioxide	ACTIV
Hazardous Air Pollutants	
CAS: 67-56-1 Methanol	
Proposition 65	
Chemicals known to cause cancer:	
CAS: 693-98-1 2-methylimidazole	
Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
None of the ingredients is listed.	
None of the ingredients is listed.	
None of the ingredients is listed. Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.Chemicals known to cause developmental toxicity:CAS: 67-56-1MethanolCAS: 7446-09-5Sulfur Dioxide	
None of the ingredients is listed.Chemicals known to cause developmental toxicity:CAS: 67-56-1MethanolCAS: 7446-09-5Sulfur DioxideCarcinogenic categories	
None of the ingredients is listed.Chemicals known to cause developmental toxicity:CAS: 67-56-1MethanolCAS: 7446-09-5Sulfur DioxideCarcinogenic categories	
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None of the ingredients is listed. Chemicals known to cause developmental toxicity: CAS: 67-56-1 Methanol CAS: 7446-09-5 Sulfur Dioxide Carcinogenic categories EPA (Environmental Protection Agency) None of the ingredients is listed. Itel (Itel	A

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(Contd. of page 10) · NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients is listed. • GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). · Hazard pictograms GHS06 GHS05 GHS08 · Signal word Danger · Hazard-determining components of labeling: Methanol Iodine *DEA regulated item Imidazole, Certified 2-methylimidazole Sulfur Dioxide · Hazard statements Combustible liquid. Toxic if swallowed, in contact with skin or if inhaled. Causes severe skin burns and eye damage. Suspected of causing cancer. May damage fertility or the unborn child. Causes damage to the central nervous system and the visual organs. Causes damage to organs through prolonged or repeated exposure. · Precautionary statements Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. *Keep away from flames and hot surfaces. – No smoking.* Do not breathe dusts or mists. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eve protection/face protection. If swallowed: Immediately call a poison center/doctor. Specific treatment (see on this label). If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Get medical advice/attention if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use CO2, powder or water spray to extinguish. Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations.

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· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: Environment protection department. • Contact: Date of Preparation / Last Revision:
- · Date of preparation / last revision Revision 1.2, 05/16/2024: Reviewed SDS for accuracy. MH/STN 05/16/2024 · Abbreviations and acronyms: IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety

OSHA: Occupational Institute for Occupational OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit

BEI: Biological Exposure Limit Flammable Liquids 4: Flammable liquids – Category 4

Acute Toxicity - Oral 3: Acute toxicity – Category 3

Skin Corrosion 1A: Skin corrosion/irritation – Category 1A Eye Damage 1: Serious eye damage/eye irritation – Category 1

Carcinogenicity 2: Carcinogenicity – Category 2

Toxic to Reproduction 1A: Reproductive toxicity – Category 1A

Specific Target Organ Toxicity - Single Exposure 1: Specific target organ toxicity (single exposure) – Category 1 Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1

 \cdot * Data compared to the previous version altered.