Printing date 05/16/2024

Reviewed on 05/16/2024

Identification	
Product identifier	
Trade name: <u>Sulfur & Nitrogen Standard</u> 800 ppm w/w in Iso-Octane	
Article number: LY382	
Details of the supplier of the safety data sheet Manufacturer/Supplier: Aqua Solutions, Inc. 6913 Highway 225 DEER PARK, TX 77536 USA	AQUA SOLUTIONS
800-256-2586	
Information department: Technical Coordinator Sherman Nelson shermann@aquasolutions.org Emergency telephone number: Chemtrec: 800-424-9300 Canutec: 613-996-6666	
Hazard(s) identification	
GHS02 Flame Flammable Liquids 2	H225 Highly flammable liquid and vapor.
GHS08 Health hazard	
Carcinogenicity 2 Aspiration Hazard 1	H351 Suspected of causing cancer. H304 May be fatal if swallowed and enters airways.
GHS07	
Skin Irritation 2	H315 Causes skin irritation.
Specific Target Organ Toxicity - Single Exposure 3	
Label elements GHS label elements The product is classified and la Hazard pictograms	abeled according to the Globally Harmonized System (GHS)
GHS02 GHS07 GHS08	
Signal word Danson	
Signal word Danger	
Hazard-determining components of labeling: 2,2,4-Trimethylpentane (Iso-Octane)	

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· Hazard statements	
Highly flammable liquid and vapor. Causes skin irritation.	
Suspected of causing cancer.	
May cause drowsiness or dizziness.	
•	
May be fatal if swallowed and enters airways. • Precautionary statements	
Obtain special instructions before use.	
Do not handle until all safety precautions have been read and understood.	
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. Avoid breathing dust/fume/gas/mist/vapors/spray	
Wash thoroughly after handling. 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).	
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 exposed or concerned: Get medical advice/attention.	
Call a poison center/doctor if you feel unwell.	
Take off contaminated clothing and wash it before reuse.	
If skin irritation occurs: Get medical advice/attention.	
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 regulation	15
Classification system:	
NFPA ratings (scale 0 - 4)	
A A A A A A A A A A A A A A A A A A A	
Health = 1	
Fire = 3	
Reactivity = 0	
HMIS regimes (scale 0 4)	
· HMIS-ratings (scale 0 - 4)	
$\frac{\text{HEALTH}}{2} Health = 2$	
FIRE 3 $Fire = 3$	
REACTIVITY O Reactivity = 0	
• Other hazards	
· Results of PBT and vPvB assessment	
• PBT: Not applicable.	
• vPvB : Not applicable.	
	US —
	(Contd. on page 3)

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3 Composition/information on ingredients

· Chemical characterization: Mixtures

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

· Dangerous components:			
CAS: 540-84-1 2,2,4-Trimethylpentane (Iso-Octane)	99.183%		
CAS: 110-86-1 Pyridine	0.452%		
· Table of Nonhazardous Ingredients			
CAS: 544-40-1 Butyl sulfide	0.365%		

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: 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.
- After swallowing: If symptoms persist consult 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.

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.
- · For safety reasons unsuitable extinguishing agents: Water with full jet
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away.
 Environmental precautions: Do not allow product to reach sewage system or any water course.
- Do not allow product to reach sewage system of any water course.
- Inform respective authorities in case of seepage into water course or sewage system.
- Do not allow to enter sewers/ surface or ground water. • Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.
- **Reference to other sections**
- See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

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· Protective Acti	on Criteria for Chemicals	(Contd. of page 3
· PAC-1:	,	
CAS: 540-84-1	2,2,4-Trimethylpentane (Iso-Octane)	230 ppm
CAS: 110-86-1	Pyridine	3 ppm
• PAC-2:	·	
CAS: 540-84-1	2,2,4-Trimethylpentane (Iso-Octane)	830 ppm
CAS: 110-86-1	Pyridine	19 ppm
· PAC-3:		
CAS: 540-84-1	2,2,4-Trimethylpentane (Iso-Octane)	5000* ppm
CAS: 110-86-1	Pyridine	3600* 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 ignition sources away - Do not smoke. Protect against electrostatic charges. Keep respiratory protective device available.

- Conditions for safe storage, including any incompatibilities • Storage:
- Requirements to be met by storerooms and receptacles: Store in a cool location.
- · Information about storage in one common storage facility: Not required.
- \cdot Further information about storage conditions:
- Keep receptacle tightly sealed.
- Store in cool, dry conditions in well sealed receptacles.
- 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:

CAS: 540-84-1 2,2,4-Trimethylpentane (Iso-Octane)

TLV Long-term value: 300 ppm

CAS: 110-86-1 Pyridine

PEL Long-term value: 15 mg/m³, 5 ppm

REL Long-term value: 15 mg/m³, 5 ppm

TLV Long-term value: 1 ppm A3

• Additional information: The lists that were valid during the creation were used as basis.

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(Contd. of page 4)

- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Store protective clothing separately. Avoid contact with the skin. Avoid contact with the eyes and skin.

• Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

• Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. • Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

• Eye protection:



Tightly sealed goggles

· Body protection: Protective work clothing

Information on basic physical and General Information	chemical properties	
Appearance:		
Form:	Liquid	
Color:	Nearly water white	
Odor:	Organic and sulfur	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	-107.4 °C (-161.3 °F)	
Boiling point/Boiling range:	98 °C (208.4 °F)	

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	(Contd. of page 5
· Flash point:	-12 °C (10.4 °F)
· Flammability (solid, gaseous):	Highly flammable.
· Auto igniting:	410 °C (770 °F)
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.1 Vol %
Upper:	6 Vol %
· Vapor pressure at 20 °C (68 °F):	15 hPa (11.3 mm Hg)
· Density at 20 °C (68 °F):	0.69186 g/cm³ (5.77357 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
• Evaporation rate	Not determined.
\cdot Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/wate	r): Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.2 %
VOC content:	99.18 %
	686.2 g/l / 5.73 lb/gal
Solids content:	0.0 %
• 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.
- · Hazardous decomposition products: No dangerous decomposition products known.

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2B

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- · Additional toxicological information:
- The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

CAS: 110-86-1 Pyridine

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients 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 2 (Self-assessment): hazardous for water
- Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

- · 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.

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UN-Number DOT, IMDG, IATA	UN1993
UN proper shipping name	
DOT	Flammable liquids, n.o.s. (Octanes)
IMDG	FLAMMABLE LIQUID, N.O.S. (Octanes), MARINE POLLUTA
IATA	FLAMMABLE LIQUID, N.O.S. (Octanes)
Transport hazard class(es)	
DOT	
R.AMMABLE LIQUD	
3	
Class	3 Flammable liquids
Label	3
IMDG	
Class	3 Flammable liquids
Label	3
IATA	
Class Label	3 Flammable liquids
	3
Packing group DOT, IMDG, IATA	II
Environmental hazards:	Product contains environmentally hazardous substances: Octar
Marine pollutant:	Yes Symbol (fish and tree)
~	
Special precautions for user	Warning: Flammable liquids
Hazard identification number (Kemler code). EMS Number:	<i>F-E,S-E</i>
Stowage Category	B
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L

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	(Contd. of page 8)
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN ''Model Regulation'':	UN 1993 FLAMMABLE LIQUID, N.O.S. (OCTANES), 3, II

15 Regulatory information

Section 355 (extremely hazardous substances):	
None of the ingredients is listed.	
Section 313 (Specific toxic chemical listings):	
CAS: 110-86-1 Pyridine	
TSCA (Toxic Substances Control Act):	
2,2,4-Trimethylpentane (Iso-Octane)	ACTIV
Pyridine	ACTIV
Butyl sulfide	ACTIV
Hazardous Air Pollutants	
CAS: 540-84-1 2,2,4-Trimethylpentane (Iso-Octane)	
Proposition 65	
Chemicals known to cause cancer:	
CAS: 110-86-1 Pyridine	
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.	
Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
Carcinogenic categories	
EPA (Environmental Protection Agency)	
CAS: 540-84-1 2,2,4-Trimethylpentane (Iso-Octane)	
CAS: 540-84-1 2,2,4-1rimethylpentane (Iso-Octane)	
	A

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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:

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	(Contd. of page 10)
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)	
PBT: Persistent, Bioaccumulative and Toxic	
vPvB: very Persistent and very Bioaccumulative	
NIOSH: National Institute for Occupational Safety	
OSHA: Occupational Safety & Health	
TLV: Threshold Limit Value	
PEL: Permissible Exposure Limit	
REL: Recommended Exposure Limit	
Flammable Liquids 2: Flammable liquids – Category 2	
Skin Irritation 2: Skin corrosion/irritation – Category 2	
Carcinogenicity 2: Carcinogenicity – Category 2	
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3	
Aspiration Hazard 1: Aspiration hazard – Category 1	
\cdot $*$ Data compared to the previous version altered.	
	US