



YELLOW FEVER

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 7/19/2022 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product code : 5355HOT

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

KARCHER NORTH AMERICA
6398 N Karcher Way
Aurora, 80019
United States
T 303-738-2400
info@karcher.com

1.4. Emergency telephone number

Emergency number : 800-535-5053
For Chemical Emergency Call INFOTRAC 24hr/day 7days/week
Within USA and Canada: 1-800-535-5053
Outside USA and Canada: 011-1-352-323-3500
(collect calls accepted)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Acute toxicity (dermal) Category 3	H311	Toxic in contact with skin
Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled
Skin corrosion/irritation Category 1	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Carcinogenicity Category 1A	H350	May cause cancer (Dermal, Inhalation, oral)
Full text of H statements : see section 16		

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger
Hazard statements (GHS US) : H302+H332 - Harmful if swallowed or if inhaled
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H350 - May cause cancer (Dermal, Inhalation, oral)
Precautionary statements (GHS US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.

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P260 - Do not breathe dust, fume, gas, mist, spray, vapors.
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312 - If swallowed: Call a POISON CENTER, a doctor if you feel unwell
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P302+P352 - If on skin: Wash with plenty of water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention.
P310 - Immediately call a POISON CENTER, a doctor
P312 - Call a POISON CENTER, a doctor if you feel unwell
P330 - Rinse mouth.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P363 - Wash contaminated clothing before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
SULFURIC ACID	CAS-No.: 7664-93-9	10 – 20
PHOSPHORIC ACID	CAS-No.: 7664-38-2	1 – 5
CITRIC ACID	CAS-No.: 77-92-9	1 – 5
BUTHOXYETHANOL	CAS-No.: 111-76-2	1 – 5
HYDROFLUORIC ACID	CAS-No.: 7664-39-3	1 – 5
ALCOHOLS, C8-C10, ETHOXYLATED	CAS-No.: 71060-57-6	1 – 5

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

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First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

Fire hazard	: Heating increases the fire hazard.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust, fume, gas, mist, spray, vapors.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: In case of spill, use hydrofluoric acid specific spill kit
Other information	: Dispose of materials or solid residues at an authorized site.

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6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	: Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Do not get in eyes, on skin, or on clothing. Do not breathe dust, fume, gas, mist, spray, vapors.
Hygiene measures	: Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Comply with applicable regulations.
Storage conditions	: Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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No additional information available	
CITRIC ACID (77-92-9)	
No additional information available	
PHOSPHORIC ACID (7664-38-2)	
No additional information available	
HYDROFLUORIC ACID (7664-39-3)	
No additional information available	
SULFURIC ACID (7664-93-9)	
No additional information available	
ALCOHOLS, C8-C10, ETHOXYLATED (71060-57-6)	
No additional information available	
BUTHOXYETHANOL (111-76-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	2-Butoxyethanol (EGBE)
ACGIH OEL TWA [ppm]	20 ppm
Remark (ACGIH)	TLV® Basis: Eye & URT irr. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI

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BUTHOXYETHANOL (111-76-2)	
Regulatory reference	ACGIH 2019
USA - OSHA - Occupational Exposure Limits	
Local name	2-Butoxyethanol
OSHA PEL (TWA) [1]	240 mg/m ³
OSHA PEL (TWA) [2]	50 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves
Eye protection:
Safety glasses
Skin and body protection:
Wear suitable protective clothing
Respiratory protection:
Wear respiratory protection.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Orange
Odor	: Characteristic odour
Odor threshold	: No data available
pH	: < 2
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available

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Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Toxic in contact with skin.
Acute toxicity (inhalation)	: Harmful if inhaled.

YELLOW FEVER	
ATE US (oral)	329.84 mg/kg body weight
ATE US (dermal)	337.63 mg/kg body weight
ATE US (dust, mist)	3.226 mg/l/4h
CITRIC ACID (77-92-9)	
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
ATE US (oral)	5400 mg/kg body weight

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HYDROFLUORIC ACID (7664-39-3)	
ATE US (oral)	5 mg/kg body weight
ATE US (dermal)	5 mg/kg body weight
ATE US (gases)	100 ppmV/4h
ATE US (vapors)	0.5 mg/l/4h
ATE US (dust, mist)	0.05 mg/l/4h
SULFURIC ACID (7664-93-9)	
LD50 oral rat	2140 mg/kg body weight Animal: rat, 95% CL: 1540 - 2990
LC50 inhalation rat (mg/l)	0.375 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
ATE US (oral)	2140 mg/kg body weight
ALCOHOLS, C8-C10, ETHOXYLATED (71060-57-6)	
ATE US (oral)	500 mg/kg body weight
BUTHOXYETHANOL (111-76-2)	
LD50 oral rat	1746 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, 14 day(s))
LC50 inhalation rat (mg/l)	> 4.26 mg/l (4 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s))
ATE US (oral)	1414 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h
Skin corrosion/irritation	: Causes severe skin burns. pH: < 2
Serious eye damage/irritation	: Causes serious eye damage. pH: < 2
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: May cause cancer (Dermal, Inhalation, oral).
SULFURIC ACID (7664-93-9)	
National Toxicity Program (NTP) Status	Known Human Carcinogens
BUTHOXYETHANOL (111-76-2)	
IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
BUTHOXYETHANOL (111-76-2)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: Not classified
CITRIC ACID (77-92-9)	
LOAEL (oral,rat,90 days)	8000 mg/kg body weight Animal: rat
NOAEL (oral,rat,90 days)	4000 mg/kg body weight Animal: rat

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BUTHOXYETHANOL (111-76-2)	
NOAEL (dermal, rat/rabbit, 90 days)	> 150 mg/kg body weight Animal: rabbit, Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)

Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

CITRIC ACID (77-92-9)	
LC50 - Fish [1]	440 – 760 mg/l (Equivalent or similar to OECD 203, 48 h, Leuciscus idus, Static system, Fresh water, Experimental value, Nominal concentration)

PHOSPHORIC ACID (7664-38-2)	
LC50 - Fish [1]	138 mg/l (Pisces, Pure substance)

SULFURIC ACID (7664-93-9)	
EC50 - Daphnia [1]	> 100 mg/l Test organisms (species): Daphnia magna
NOEC (chronic)	0.15 mg/l Test organisms (species): other: Tanytarsus dissimilis
NOEC chronic fish	0.31 mg/l Test organisms (species): Salvelinus fontinalis

BUTHOXYETHANOL (111-76-2)	
LC50 - Fish [1]	1474 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Lethal)
EC50 - Daphnia [1]	1550 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	1840 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
NOEC (chronic)	100 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) Duration: '21 d'

12.2. Persistence and degradability

CITRIC ACID (77-92-9)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.42 g O ₂ /g substance
Chemical oxygen demand (COD)	0.728 g O ₂ /g substance
ThOD	0.686 g O ₂ /g substance
BOD (% of ThOD)	0.89 (20 day(s), Literature study)

PHOSPHORIC ACID (7664-38-2)	
Persistence and degradability	Biodegradability: not applicable.

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PHOSPHORIC ACID (7664-38-2)	
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
BUTHOXYETHANOL (111-76-2)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

CITRIC ACID (77-92-9)	
BCF - Other aquatic organisms [1]	3.2 l/kg (Calculated value)
Partition coefficient n-octanol/water (Log Pow)	-1.8 – -1.55 (Experimental value)
Bioaccumulative potential	Not bioaccumulative.
PHOSPHORIC ACID (7664-38-2)	
Bioaccumulative potential	Does not contain bioaccumulative component(s).
BUTHOXYETHANOL (111-76-2)	
Partition coefficient n-octanol/water (Log Pow)	0.81 (Experimental value, BASF test, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

CITRIC ACID (77-92-9)	
Ecology - soil	No (test)data on mobility of the substance available.
PHOSPHORIC ACID (7664-38-2)	
Ecology - soil	No (test)data on mobility of the component(s) available.
BUTHOXYETHANOL (111-76-2)	
Surface tension	65.03 mN/m (20 °C, 2 g/l)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.451 – 0.882 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

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SECTION 14: Transport information

14.1. UN number

DOT NA No : UN2922

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Corrosive liquids, toxic, n.o.s., (SULFURIC ACID, PHOSPHORIC ACID, HYDROFLUORIC ACID), 8 (6.1), II

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 8 (6.1)

Hazard labels (DOT) : 8, 6.1



14.4. Packing group

Packing group (DOT) : II

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN2922

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

HYDROFLUORIC ACID	CAS-No. 7664-39-3	1 – 5%
SULFURIC ACID	CAS-No. 7664-93-9	10 – 20%

PHOSPHORIC ACID (7664-38-2)

CERCLA RQ : 5000 lb

HYDROFLUORIC ACID (7664-39-3)

Listed on EPA Hazardous Air Pollutant (HAPS)

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HYDROFLUORIC ACID (7664-39-3)	
CERCLA RQ	100 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	100 lb

SULFURIC ACID (7664-93-9)	
CERCLA RQ	1000 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb

15.2. International regulations

SULFURIC ACID (7664-93-9)
Listed as carcinogen on NTP (National Toxicology Program)

15.3. US State regulations

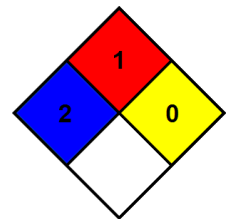
⚠ WARNING: This product can expose you to ETHYLENE OXIDE, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

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Full text of H-phrases	
H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H332	Harmful if inhaled
H350	May cause cancer

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.
NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating
Health : 2 Moderate Hazard - Temporary or minor injury may occur
Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

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Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : X - Special handling directions

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.