ionz

SAFETY DATA SHEET

Updated on 11/10/2024

1. Material Identification

Product Name : Hydrogen chloride (gas only)
Catalog Number : io-2512
CAS Number : 7647-01-0
Identified uses : Laboratory chemicals, manufacture of chemical compounds
Company : Ionz

>> R&D Use only

2. Hazards Identification

GHS Classification:

Flammable liquid (category 2)
Acute toxicity, oral (Category 3)
Acute toxicity, dermal (Category 3)
Acute toxicity, inhalation (Category 3)
Specific target organ toxicity, single exposure (Category 1)

Note

>> Pictograms displayed are for > 99.9% (4814 of 4815) of reports that indicate hazard statements. This chemical does not meet GHS hazard criteria for < 0.1% (1 of 4815) of reports.

Pictogram(s)

GHS Hazard Statements

>> H280 (16.9%): Contains gas under pressure; may explode if heated [Warning Gases under pressure]

>> H290 (23.4%): May be corrosive to metals [Warning Corrosive to Metals]

>> H314 (99.9%): Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]

>> H318 (19.8%): Causes serious eye damage [Danger Serious eye damage/eye irritation]

>> H331 (47.1%): Toxic if inhaled [Danger Acute toxicity, inhalation]

>> H335 (61.7%): May cause respiratory irritation [Warning Specific target organ toxicity, single exposure; Respiratory tract irritation]

Precautionary Statement Codes

>> P234, P260, P261, P264, P264+P265, P271, P280, P301+P330+P331, P302+P361+P354, P304+P340, P305+P354+P338, P316, P317, P319, P321, P363, P390, P403+P233, P405, P406, P410+P403, and P501

NFPA 704 Diamond

NFPA Health Rating

>> 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA Fire Rating

>> 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA Instability Rating

>> 1 - Materials that in themselves are normally stable but that can become unstable at elevated temperatures and pressures.

EPA Safer Chemical:

EPA labels products so that consumers can easily choose ones that are safer for people and the environment. When consumers see the Safer Choice label on a product, they can be confident that the ingredients have been through a rigorous EPA review. The label means that EPA scientists have evaluated every ingredient in the product to ensure it meets Safer Choice's stringent criteria. When people use Safer Choice products, they are protecting their families and the environment by making safer chemical choices.

EPA Safer Chemical

>> Chemical: Hydrochloric acid (aqueous)

>> Yellow triangle - The chemical has met Safer Choice Criteria for its functional ingredient-class, but has some hazard profile issues. Specifically, a chemical with this code is not associated with a low level of hazard concern for all human health and environmental endpoints. (See Safer Choice Criteria). While it is a best-in-class chemical and among the safest available for a particular function, the function fulfilled by the chemical should be considered an area for safer chemistry innovation.
△

Highly Hazardous Substance:

This section provides information on this chemical as a highly hazardous substance (due to potential safety and hazards issues from its high toxicity and/or reactivity). The information in this section is from two sources: (1) Annex XVII to REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) from the European Chemicals Agency (ECHA), (2) ECHA's Candidate List of Substances of Very High Concern (SVHC) for Authorisation and (3) the List of Highly Hazardous Chemicals, Toxics and Reactives (29 CFR 1910.119 Appendix A).

OSHA Highly Hazardous Chemicals, Toxics and Reactives

>> Chemical: Hydrochloric Acid, Anhydrous

>> Threshold: 5000 [lb]

>> Note: Hydrochloric Acid, Anhydrous in quantities at or above above 5000lb presents a potential for a catastrophic event as a toxic or reactive highly hazardous chemical.

Health Hazards:

>> Inhalation of fumes results in coughing and choking sensation, and irritation of nose and lungs. Liquid causes burns. (USCG, 1999)

ERG 2024, Guide 157 (Hydrochloric acid)

>> TOXIC and/or CORROSIVE; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.

>> Reaction with water or moist air may release toxic, corrosive or flammable gases.

>> Reaction with water may generate much heat that will increase the concentration of fumes in the air.

>> Fire will produce irritating, corrosive and/or toxic gases.

>> Runoff from fire control or dilution water may be corrosive and/or toxic and cause environmental contamination.

ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> TOXIC and/or CORROSIVE; may be fatal if inhaled, ingested or absorbed through skin.

>> Vapors are extremely irritating and corrosive.

>> Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.

>> Fire will produce irritating, corrosive and/or toxic gases.

>> Runoff from fire control or dilution water may cause environmental contamination.

ERG 2024, Guide 157 (Muriatic acid)

>> TOXIC and/or CORROSIVE; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.

>> Reaction with water or moist air may release toxic, corrosive or flammable gases.

>> Reaction with water may generate much heat that will increase the concentration of fumes in the air.

>> Fire will produce irritating, corrosive and/or toxic gases.

>> Runoff from fire control or dilution water may be corrosive and/or toxic and cause environmental contamination.

>> Special Hazards of Combustion Products: Toxic and irritating vapors are generated when heated. (USCG, 1999)

ERG 2024, Guide 157 (Hydrochloric acid)

>> Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

>> UN1802, UN2032, UN3084, UN3093, UN1796 (above 50%), UN1826 (above 50%), and UN2031 (above 65%) may act as oxidizers. Also consult GUIDE 140.

>> Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.).

>> Substance may react with water (some violently), releasing corrosive and/or toxic gases and runoff.

>> Corrosives in contact with metals may evolve flammable hydrogen gas.

>> Containers may explode when heated or if contaminated with water.

ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Some may burn but none ignite readily.

>> Vapors from liquefied gas are initially heavier than air and spread along ground.

>> Some of these materials may react violently with water.

>> Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.

>> Containers may explode when heated.

>> Ruptured cylinders may rocket.

>> For UN1005: Anhydrous ammonia, at high concentrations in confined spaces, presents a flammability risk if a source of ignition is introduced.

ERG 2024, Guide 157 (Muriatic acid)

>> Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

>> UN1802, UN2032, UN3084, UN3093, UN1796 (above 50%), UN1826 (above 50%), and UN2031 (above 65%) may act as oxidizers. Also consult GUIDE 140.

>> Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.).

>> Substance may react with water (some violently), releasing corrosive and/or toxic gases and runoff.

>> Corrosives in contact with metals may evolve flammable hydrogen gas.

>> Containers may explode when heated or if contaminated with water.

>> Not combustible.

Hazards Identification

ERG Hazard Classes

>> Toxic/poison by inhalation (TIH/PIH)

ERG Hazard Classes

>> Toxic/poison by inhalation (TIH/PIH)

3. Composition/Information On Ingredients

Chemical name : Hydrogen chloride (gas only)
CAS Number : 7647-01-0
Molecular Formula : ClH
Molecular Weight : 36.4600 g/mol

4. First Aid Measures

First Aid:

>> INHALATION: remove person to fresh air; keep him warm and quiet and get medical attention immediately; start artificial respiration if breathing stops.

>> INGESTION: have person drink water or milk; do NOT induce vomiting.

>> EYES: immediately flush with plenty of water for at least 15 min. and get medical attention; continue flushing for another 15 min. if physician does not arrive promptly.

>> SKIN: immediately flush skin while removing contaminated clothing; get medical attention promptly; use soap and wash area for at least 15 min. (USCG, 1999)

ERG 2024, Guide 157 (Hydrochloric acid)

>> General First Aid:

>> Call 911 or emergency medical service.

>> Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and avoid contamination.

>> Move victim to fresh air if it can be done safely.

>> Administer oxygen if breathing is difficult.

>> If victim is not breathing:

>> DO NOT perform mouth-to-mouth resuscitation; the victim may have ingestedor inhaled the substance.

>> If equipped and pulse detected, wash face and mouth, then give artificial respiration using a proper respiratory medical device (bag-valve mask, pocket mask equipped with a one-way valve or other device).

>> If no pulse detected or no respiratory medical device available, provide continuouscompressions. Conduct a pulse check every two minutes or monitor for any signs of spontaneous respirations.

>> Remove and isolate contaminated clothing and shoes.

>> For minor skin contact, avoid spreading material on unaffected skin.

>> In case of contact with substance, remove immediately by flushing skin or eyes with running water for at least 20 minutes.

>> For severe burns, immediate medical attention is required.

>> Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

>> Keep victim calm and warm.

>> Keep victim under observation.

>> For further assistance, contact your local Poison Control Center.

>> Note: Basic Life Support (BLS) and Advanced Life Support (ALS) should be done by trained professionals.

>> Specific First Aid:

>> For corrosives, in case of contact, immediately flush skin or eyes with running water for at least 30 minutes. Additional flushing may be required.

>> In case of skin contact with Hydrofluoric acid (UN1790), if calcium gluconate gel is available, rinse 5 minutes, then apply gel. Otherwise, continue rinsing until medical treatment is available.

>> In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping paper and/or the "ERAP" section.

ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> General First Aid:

>> Call 911 or emergency medical service.

>> Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and avoid contamination.

>> Move victim to fresh air if it can be done safely.

>> Administer oxygen if breathing is difficult.

>> If victim is not breathing:

>> DO NOT perform mouth-to-mouth resuscitation; the victim may have ingestedor inhaled the substance.

>> If equipped and pulse detected, wash face and mouth, then give artificial respiration using a proper respiratory medical device (bag-valve mask, pocket mask equipped with a one-way valve or other device).

>> If no pulse detected or no respiratory medical device available, provide continuouscompressions. Conduct a pulse check every two minutes or monitor for any signs of spontaneous respirations.

>> Remove and isolate contaminated clothing and shoes.

>> For minor skin contact, avoid spreading material on unaffected skin.

>> In case of contact with substance, remove immediately by flushing skin or eyes with running water for at least 20 minutes.

>> For severe burns, immediate medical attention is required.

>> Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

>> Keep victim calm and warm.

>> Keep victim under observation.

>> For further assistance, contact your local Poison Control Center.

>> Note: Basic Life Support (BLS) and Advanced Life Support (ALS) should be done by trained professionals.

>> Specific First Aid:

>> In case of contact with liquefied gas, only medical personnel should attempt thawing frosted parts.

>> In case of skin contact with hydrogen fluoride, anhydrous (UN1052), if calcium gluconate gel is available, rinse 5 minutes, then apply gel. Otherwise, continue rinsing until medical treatment is available.

>> In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping paper and/or the "ERAP" section.

ERG 2024, Guide 157 (Muriatic acid)

>> General First Aid:

>> Call 911 or emergency medical service.

>> Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and avoid contamination.

>> Move victim to fresh air if it can be done safely.

>> Administer oxygen if breathing is difficult.

>> If victim is not breathing:

>> DO NOT perform mouth-to-mouth resuscitation; the victim may have ingestedor inhaled the substance.

>> If equipped and pulse detected, wash face and mouth, then give artificial respiration using a proper respiratory medical device (bag-valve mask, pocket mask equipped with a one-way valve or other device).

>> If no pulse detected or no respiratory medical device available, provide continuouscompressions. Conduct a pulse check every two minutes or monitor for any signs of spontaneous respirations.

>> Remove and isolate contaminated clothing and shoes.

>> For minor skin contact, avoid spreading material on unaffected skin.

>> In case of contact with substance, remove immediately by flushing skin or eyes with running water for at least 20 minutes.

>> For severe burns, immediate medical attention is required.

>> Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

>> Keep victim calm and warm.

>> Keep victim under observation.

>> For further assistance, contact your local Poison Control Center.

>> Note: Basic Life Support (BLS) and Advanced Life Support (ALS) should be done by trained professionals.

>> Specific First Aid:

>> For corrosives, in case of contact, immediately flush skin or eyes with running water for at least 30 minutes. Additional flushing may be required.

>> In case of skin contact with Hydrofluoric acid (UN1790), if calcium gluconate gel is available, rinse 5 minutes, then apply gel. Otherwise, continue rinsing until medical treatment is available.

>> In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping paper and/or the "ERAP" section.

First Aid Measures

Inhalation First Aid

>> Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.

Skin First Aid

>> Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer immediately for medical attention.

Eye First Aid

>> Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.

5. Fire Fighting Measures

>> Confined fires with high fuel loads of polyvinyl chloride, such as a fire in a vault with a high load of polyvinyl chloride coated electrical wiring, may generate sufficient hydrogen chloride to cause irritation in fire fighters. Rapid combustion of relatively large amt of polymer may yield ... hydrogen chloride ... .

>> Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

>> Note: Some foams will react with the material and release corrosive/toxic gases.

>> SMALL FIRE: CO2 (except for Cyanides), dry chemical, dry sand, alcohol-resistant foam.

>> LARGE FIRE: Water spray, fog or alcohol-resistant foam. If it can be done safely, move undamaged containers away from the area around the fire. Avoid aiming straight or solid streams directly onto the product. Dike runoff from fire control for later disposal.

>> FIRE INVOLVING TANKS, RAIL TANK CARS OR HIGHWAY TANKS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. (ERG, 2024)

>> Wear self-contained breathing apparatus and full protective clothing. Neutralize with chemically basic substances such as soda ash or slaked lime.

>> Normal fire fighting procedures may be used. Do not get water inside containers. Move containers from fire area. Keep containers that are exposed to the fire cool with water that is sprayed from the side until well after the fire is out. (EPA, 1998)

>> Excerpt from ERG Guide 125 [Gases - Toxic and/or Corrosive]:

>> SMALL FIRE: Dry chemical or CO2.

>> LARGE FIRE: Water spray, fog or regular foam. If it can be done safely, move undamaged containers away from the area around the fire. Do not get water inside containers. Damaged cylinders should be handled only by specialists.

>> FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. (ERG, 2024)

>> In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

6. Accidental Release Measures

Isolation and Evacuation:

Isolation and evacuation measures to take when a large amount of this chemical is accidentally released in an emergency.

>> Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

>> IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

>> SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Evacuation: ERG 2024, Guide 157 (Hydrochloric acid)

>> Immediate precautionary measure

>> Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

>> Spill

>> For non-highlighted materials: increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> Fire

>> If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

Evacuation: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Immediate precautionary measure

>> Isolate spill or leak area for at least 100 meters (330 feet) in all directions.

>> Spill

>> For non-highlighted materials: increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> Fire

>> If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Isolation

>> Small spill:

>> ISOLATE in all directions: 30 m (100 ft)

>> Large spill:

>> ISOLATE in all Directions:

>> Rail tank car: 500 m (1500 ft)

>> Highway tank truck or trailer: 200 m (600 ft)

>> Multiple ton cylinders: 30 m (100 ft)

>> Multiple small cylinders or single ton cylinder: 30 m (100 ft)

Protection

>> Small spill:

>> PROTECT people from downwind during DAY time: 0.1 km (0.1 mi)

>> PROTECT people from downwind during NIGHT time: 0.3 km (0.2 mi)

>> Large spill:

>> PROTECT people from downwind during DAY time:

>> Rail tank car:

>> - - Low wind (< 6 mph (<10 km/h)): 3.7 km (2.3 mi)

>> - - Moderate wind (6-12 mph (10-20 km/h)): 2.0 km (1.3 mi)

>> - - High wind (> 12 mph (>20 km/h)): 1.7 km (1.1 mi)

>> Highway tank truck or trailer:

>> - - Low wind (< 6 mph (<10 km/h)): 1.5 km (0.9 mi)

>> - - Moderate wind (6-12 mph (10-20 km/h)): 0.8 km (0.5 mi)

>> - - High wind (> 12 mph (>20 km/h)): 0.6 km (0.4 mi)

>> Multiple ton cylinders:

>> - - Low wind (< 6 mph (<10 km/h)): 0.4 km (0.3 mi)

>> - - Moderate wind (6-12 mph (10-20 km/h)): 0.2 km (0.1 mi)

>> - - High wind (> 12 mph (>20 km/h)): 0.1 km (0.1 mi)

>> Multiple small cylinders or single ton cylinder:

>> - - Low wind (< 6 mph (<10 km/h)): 0.3 km (0.2 mi)

>> PROTECT people from downwind during NIGHT time:

>> - - Low wind (< 6 mph (<10 km/h)): 9.7 km (6.1 mi)

>> - - Moderate wind (6-12 mph (10-20 km/h)): 3.3 km (2.1 mi)

>> - - High wind (> 12 mph (>20 km/h)): 2.2 km (1.4 mi)

>> - - Moderate wind (6-12 mph (10-20 km/h)): 1.5 km (0.9 mi)

>> - - High wind (> 12 mph (>20 km/h)): 0.8 km (0.5 mi)

>> - - Low wind (< 6 mph (<10 km/h)): 1.0 km (0.6 mi)

>> - - Moderate wind (6-12 mph (10-20 km/h)): 0.3 km (0.2 mi)

>> - - Low wind (< 6 mph (<10 km/h)): 0.9 km (0.6 mi)

>> - - High wind (> 12 mph (>20 km/h)): 0.2 km (0.1 mi)

Evacuation: ERG 2024, Guide 157 (Muriatic acid)

>> Immediate precautionary measure

>> Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

>> Spill

>> For non-highlighted materials: increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> Fire

>> If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

Spillage Disposal:

Methods for containment and safety measures to protect workers dealing with a spillage of this chemical.

>> Evacuate danger area! Consult an expert! Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus. Ventilation. Remove gas with fine water spray.

Accidental Release Measures

Public Safety: ERG 2024, Guide 157 (Hydrochloric acid)

>> CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

>> Keep unauthorized personnel away.

>> Stay upwind, uphill and/or upstream.

>> Ventilate closed spaces before entering, but only if properly trained and equipped.

Spill or Leak: ERG 2024, Guide 157 (Hydrochloric acid)

>> ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area.

>> All equipment used when handling the product must be grounded.

>> Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

>> Stop leak if you can do it without risk.

>> A vapor-suppressing foam may be used to reduce vapors.

>> DO NOT GET WATER INSIDE CONTAINERS.

>> Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

>> Prevent entry into waterways, sewers, basements or confined areas.

>> Small Spill

>> Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.

>> Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

Public Safety: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

>> Keep unauthorized personnel away.

>> Stay upwind, uphill and/or upstream.

>> Many gases are heavier than air and will spread along the ground and collect in low or confined areas (sewers, basements, tanks, etc.).

>> Ventilate closed spaces before entering, but only if properly trained and equipped.

Spill or Leak: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Do not touch or walk through spilled material.

>> Stop leak if you can do it without risk.

>> If possible, turn leaking containers so that gas escapes rather than liquid.

>> Prevent entry into waterways, sewers, basements or confined areas.

>> Do not direct water at spill or source of leak.

>> Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

>> Isolate area until gas has dispersed.

Public Safety: ERG 2024, Guide 157 (Muriatic acid)

>> CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

>> Keep unauthorized personnel away.

>> Stay upwind, uphill and/or upstream.

>> Ventilate closed spaces before entering, but only if properly trained and equipped.

Spill or Leak: ERG 2024, Guide 157 (Muriatic acid)

>> ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area.

>> All equipment used when handling the product must be grounded.

>> Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

>> Stop leak if you can do it without risk.

>> A vapor-suppressing foam may be used to reduce vapors.

>> DO NOT GET WATER INSIDE CONTAINERS.

>> Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

>> Prevent entry into waterways, sewers, basements or confined areas.

>> Small Spill

>> Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.

>> Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

Public Safety: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

>> Keep unauthorized personnel away.

>> Stay upwind, uphill and/or upstream.

>> Many gases are heavier than air and will spread along the ground and collect in low or confined areas (sewers, basements, tanks, etc.).

>> Ventilate closed spaces before entering, but only if properly trained and equipped.

Spill or Leak: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Do not touch or walk through spilled material.

>> Stop leak if you can do it without risk.

>> If possible, turn leaking containers so that gas escapes rather than liquid.

>> Prevent entry into waterways, sewers, basements or confined areas.

>> Do not direct water at spill or source of leak.

>> Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

>> Isolate area until gas has dispersed.

7. Handling And Storage

Safe Storage:

>> Cool. Fireproof if in building. Separated from food and feedstuffs and incompatible materials. See Chemical Dangers. Keep in a well-ventilated room.

Storage Conditions:

>> Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Gases

8. Exposure Control/ Personal Protection

REL-C (Ceiling)

>> 5 ppm (7 mg/m³)

>> C 5 ppm (7 mg/m3)

PEL-C (Ceiling)

>> 5 ppm (7 mg/m³)

>> C 5 ppm (7 mg/m3)

TLV-Ceiling

>> 2.0 [ppm]

>> Ceiling Limit: 2 ppm.

>> 2 ppm as STEL; A4 (not classifiable as a human carcinogen).

TLV-C (Ceiling)

>> 2 ppm [2000]

EU-OEL

>> 8 mg/m

MAK (Maximale Arbeitsplatz Konzentration)

>> 3.0 mg/m

Emergency Response: ERG 2024, Guide 157 (Hydrochloric acid)

>> Note: Some foams will react with the material and release corrosive/toxic gases.

>> Small Fire

>> CO2 (except for Cyanides), dry chemical, dry sand, alcohol-resistant foam.

>> Large Fire

>> Water spray, fog or alcohol-resistant foam.

>> If it can be done safely, move undamaged containers away from the area around the fire.

>> Avoid aiming straight or solid streams directly onto the product.

>> Dike runoff from fire control for later disposal.

>> Fire Involving Tanks, Rail Tank Cars or Highway Tanks

>> Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles.

>> Do not get water inside containers.

>> Cool containers with flooding quantities of water until well after fire is out.

>> Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

>> ALWAYS stay away from tanks in direct contact with flames.

Emergency Response: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Small Fire

>> Dry chemical or CO2.

>> Large Fire

>> Water spray, fog or regular foam.

>> If it can be done safely, move undamaged containers away from the area around the fire.

>> Do not get water inside containers.

>> Damaged cylinders should be handled only by specialists.

>> Fire Involving Tanks

>> Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles.

>> Cool containers with flooding quantities of water until well after fire is out.

>> Do not direct water at source of leak or safety devices; icing may occur.

>> Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

>> ALWAYS stay away from tanks in direct contact with flames.

Emergency Response: ERG 2024, Guide 157 (Muriatic acid)

>> Note: Some foams will react with the material and release corrosive/toxic gases.

>> Small Fire

>> CO2 (except for Cyanides), dry chemical, dry sand, alcohol-resistant foam.

>> Large Fire

>> Water spray, fog or alcohol-resistant foam.

>> If it can be done safely, move undamaged containers away from the area around the fire.

>> Avoid aiming straight or solid streams directly onto the product.

>> Dike runoff from fire control for later disposal.

>> Fire Involving Tanks, Rail Tank Cars or Highway Tanks

>> Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles.

>> Do not get water inside containers.

>> Cool containers with flooding quantities of water until well after fire is out.

>> Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

>> ALWAYS stay away from tanks in direct contact with flames.

>> ERPG-1: 3 ppm - one hour exposure limit: 1 = mild transient health effects or objectionable odor [AIHA]

>> ERPG-2: 20 ppm - one hour exposure limit: 2 = impaired ability to take protective action [AIHA]

>> ERPG-3: 150 ppm - one hour exposure limit: 3 = life threatening health effects [AIHA]

Inhalation Risk:

>> A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

Effects of Short Term Exposure:

>> Rapid evaporation of the liquid may cause frostbite. The substance is corrosive to the eyes, skin and respiratory tract. Inhalation of this gas may cause asthma-like reactions (RADS). Exposure could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause lung oedema, but only after initial corrosive effects on the eyes and the upper respiratory tract have become manifest. Inhalation of high concentrations may cause pneumonitis.

Effects of Long Term Exposure:

>> Repeated or prolonged inhalation may cause effects on the teeth. This may result in tooth erosion. The substance may have effects on the upper respiratory tract and lungs. This may result in chronic inflammation of the respiratory tract and reduced lung function . Mists of this strong inorganic acid are carcinogenic to humans.

Exposure Prevention

>> AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!

Inhalation Prevention

>> Use ventilation, local exhaust or breathing protection.

Skin Prevention

>> Cold-insulating gloves. Protective clothing.

Eye Prevention

>> Wear face shield or eye protection in combination with breathing protection.

Exposure Control and Personal Protection

Protective Clothing: ERG 2024, Guide 157 (Hydrochloric acid)

>> Wear positive pressure self-contained breathing apparatus (SCBA).

>> Wear chemical protective clothing that is specifically recommended by the manufacturer when there is NO RISK OF FIRE.

>> Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

Protective Clothing: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Wear positive pressure self-contained breathing apparatus (SCBA).

>> Wear chemical protective clothing that is specifically recommended by the manufacturer when there is NO RISK OF FIRE.

>> Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

Protective Clothing: ERG 2024, Guide 157 (Muriatic acid)

>> Wear positive pressure self-contained breathing apparatus (SCBA).

>> Wear chemical protective clothing that is specifically recommended by the manufacturer when there is NO RISK OF FIRE.

>> Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

Protective Clothing: ERG 2024, Guide 125 (Hydrogen chloride, refrigerated liquid; Hydrogen chloride, anhydrous)

>> Wear positive pressure self-contained breathing apparatus (SCBA).

>> Wear chemical protective clothing that is specifically recommended by the manufacturer when there is NO RISK OF FIRE.

>> Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

Exposure Summary

>> TIH (Toxic Inhalation Hazard) - Term used to describe gases and volatile liquids that are toxic when inhaled. Some are TIH materials themselves, e.g., chlorine, and some release TIH gases when spilled in water, e.g., chlorosilanes. [ERG 2016].

RD50 (Exposure concentration producing a 50% respiratory rate decrease)

>> 309.0 [ppm]

Maximum Allowable Concentration (MAK)

>> 2.0 [ppm]

9. Physical And Chemical Properties

Molecular Weight:

>> 36.46

Exact Mass:

>> 35.9766777

Physical Description:

>> Hydrochloric acid, solution is a colorless watery liquid with a sharp, irritating odor. Consists of hydrogen chloride, a gas, dissolved in water. Sinks and mixes with water. Produces irritating vapor. (USCG, 1999)

>> COLOURLESS COMPRESSED LIQUEFIED GAS WITH PUNGENT ODOUR.

Color/Form:

>> Colorless gas

Odor:

>> Pungent, irritating odor

Taste:

The sensation of flavor perceived in the mouth and throat on contact with a substance.

>> Taste threshold: 1.60X10-4 moles/L (recognition in water, chemically pure); 1.30X10-4 M/L (recognition in water, chemically pure); 1.10X10-4 M/L (recognition in water, chemically pure)

Boiling Point:

>> 123 °F at 760 mmHg (USCG, 1999)

>> -85.1 °C

Melting Point:

>> -174.6 °F (Melting point is -13.7 °F for a 39.17% weight/weight solution.) (EPA, 1998)

>> -114.2 °C

Solubility:

>> 82.3 g/100 g at 32 °F (NTP, 1992)

>> Solubility in water, g/100ml at 30 °C: 67 (moderate)

Density:

>> 1.05 at 59 °F for 10.17% weight/weight solution (EPA, 1998) - Denser than water; will sink

>> Density (gas): 1.00045 g/l

Vapor Density:

>> 1.268 (EPA, 1998) - Heavier than air; will sink (Relative to Air)

>> Relative vapor density (air = 1): 1.3

Vapor Pressure:

>> 413.6 mmHg (USCG, 1999)

LogP:

>> 0.25

Stability/Shelf Life:

>> Stable under recommended storage conditions.

Autoignition Temperature:

>> Not flammable (USCG, 1999)

Decomposition:

>> When heated to decomp it emits toxic fumes of Cl- /Hydrochloric acid/.

Viscosity:

>> 0.405 cP (liquid at 118.16 K); 0.0131 cP (vapor at 273.06 K); 0.0253 cP (vapor at 523.2 K)

Corrosivity:

The ability of a chemical to damage or destroy other substances when it comes into contact.

>> Corrosive

Heat of Vaporization:

>> 16.1421 kJ/mol at -85.05 °C

Surface Tension:

>> 23 mN/cm at 118.16 K

Ionization Potential:

>> 12.74 eV

Polymerization:

Polymerization is a process of reacting monomer molecules together in a chemical reaction to form polymer chains or three-dimensional networks.

>> Aldehydes and epoxides in the presence of hydrochloric acid cause violent polymerization. Alcohol and glycols in the presence of hydrochloric acid lead to dehydration reactions.

Odor Threshold:

>> Odor Threshold Low: 0.25 [ppm]

>> Odor Threshold High: 10.06 [ppm]

>> Odor threshold from AIHA

Refractive Index:

>> Index of refraction: 1.254 (liquid at 283.16 K); 1.0004456 (gas at 273.16 K)

10. Stability And Reactivity

>> An aqueous solution. Dilution may generate heat. Fumes in air.

CSL No

>> CSL00043

Reactants/Reagents

>> FORMALDEHYDE + PARAFORMALDEHYDE + HCl gas + HYDROCHLORIC ACID

Warning Message

>> Generation of bis(chloromethyl) ether (potent carcinogen)

GHS Category

>> Harmful,Toxic

Functional Group

>> ALDEHYDE

Reaction Class

>> Chlorination

Reference Source

>> User-Reported

Modified Date

>> 5/31/18

Create Date

>> 4/20/17

Reaction Scale

>> Not Available

DOI Link

>> 10.1021/acs.chas.9b00028

11. Toxicological Information

Toxicity Summary:

>> IDENTIFICATION AND USE: Hydrogen chloride is a colorless gas with pungent, irritating odor. it is used as tuberculocide, disinfectant (bactericide/germicide/purifier, limited, general or broad-spectrum, hospital or medical), sanitizer, virucide, fungicide/fungistat, and microbicide/microbiostat (slime-forming bacteria). It is also used in the manufacture of pharmaceutical hydrochlorides, vinyl chloride from acetylene, alkyl chlorides from olefins, and arsenious chlorides from arsenious oxide. In the chlorination of rubber. In organic reactions involving isomerization, polymerization, and alkylation. For making chlorine where economical. Hydrochloric acid has been identified as being used in hydraulic fracturing as a pH adjuster. HUMAN EXPOSURE AND TOXICITY: Hydrogen chloride will rapidly dissociate and its effects are thought to be a result of pH change (local deposition of H+) rather than effects of hydrogen chloride/hydrochloric acid. Hydrogen chloride is corrosive to the skin and severe effects can be expected from exposure to the eyes. No skin sensitization has been reported. The irritation of hydrogen chloride to mucous is so severe that workers evacuate from the work place shortly after detecting its odor. In humans, no association between hydrogen chloride exposure and tumor incidence was observed. In one of eight asthmatic volunteers exposed to an aerosol of unbuffered hydrochloric acid at pH 2 for 3 min during tidal breathing, airway resistance was increased by 50%. Short term exposures have been reported to induce transitory obstruction in the respiratory tract, which diminishes with repeated exposure, suggesting adaption. Acclimatized workers can work undisturbed with a hydrogen chloride level of 15 mg/cu m (10 ppm). Exposure to hydrochloric acid can produce burns on the skin and mucous membranes, the severity of which is related to the concentration of the solution. Subsequently, ulceration may occur, followed by keloid and retractile scarring. Contact with the eyes may produce reduced vision or blindness. Frequent contact with aqueous solutions of hydrochloric acid may lead to dermatitis. Dental decay, with changes in tooth structure, yellowing, softening and breaking of teeth, and related digestive diseases are frequent after exposures to hydrochloric acid. ANIMAL STUDIES: For repeated dose toxicity, local irritation effects were observed in the groups of 10 ppm and above in a 90-day inhalation study. For genetic toxicity, a negative result has been shown in the Ames test. A positive result, which is considered to be an artifact due to the low pH, has been obtained in a chromosome aberration test using Hamster ovary cells. For carcinogenicity, no pre-neoplastic or neoplastic nasal lesions were observed in a 128-week inhalation study with male rats at 10 ppm hydrogen chloride gas. No evidence of treatment related carcinogenicity was observed either in other animal studies performed by inhalation, oral or dermal administration. Hydrogen chloride is not expected to have developmental toxicity. In addition, no effects on the gonads were observed in a good 90- day inhalation study up to 50 ppm. ECOTOXICITY STUDIES: The hazard of hydrochloric acid for the environment is caused by the proton (pH effect). For this reason the effect of hydrochloric acid on the organisms depends on the buffer capacity of the aquatic ecosystem. Also the variation in acute toxicity for aquatic organisms can be explained for a significant extent by the variation in buffer capacity of the test medium. For example, LC50 values of acute fish toxicity tests varied from 4.92 to 282 mg/L

Evidence for Carcinogenicity:

Evidence that this chemical does or may cause cancer. The information here is collected from various sources by the Hazardous Substances Data Bank (HSDB).

>> Evaluation: There is inadequate evidence for the carcinogenicity in humans of hydrochloric acid. There is inadequate evidence for the carcinogenicity in experimental animals of hydrochloric acid. Overall evaluation: Hydrochloric acid is not classifiable as to its carcinogenicity to humans (Group 3).

Carcinogen Classification:

This section provides the International Agency for Research on Cancer (IARC) Carcinogenic Classification and related monograph links. In the IARC Carcinogenic classification, chemicals are categorized into four groups: Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic to humans), Group 2B (possibly carcinogenic to humans), and Group 3 (not classifiable as to its carcinogenicity to humans).

IARC Carcinogenic Agent

>> Hydrochloric acid

IARC Carcinogenic Classes

>> Group 3: Not classifiable as to its carcinogenicity to humans

IARC Monographs

>> Volume 54: (1992) Occupational Exposures to Mists and Vapours from Strong Inorganic Acids; and Other Industrial Chemicals

>> 3, not classifiable as to its carcinogenicity to humans. (L135)

Health Effects:

>> Hydrogen chloride forms corrosive hydrochloric acid on contact with water found in body tissue. Inhalation of the fumes can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory system failure, and death. Skin contact can cause redness, pain, and severe skin burns. Both hydrogen chloride gas and hydrochloric acid may cause severe burns to the eye and permanent eye damage. Severe and rapid corrosive burns of the mouth, gullet and gastrointestinal tract will result if hydrochloric acid is swallowed. Symptoms include burning, choking, nausea, vomiting and severe pain. Concentrated hydrochloric acid

(fuming hydrochloric acid) forms acidic mists. Both the mist and the solution have a corrosive effect on human tissue, with the potential to damage respiratory organs, eyes, skin, and intestines irreversibly. Upon mixing hydrochloric acid with common oxidizing chemicals, such as sodium hypochlorite (bleach, NaClO) or potassium permanganate ($KMnO_4$), the toxic gas chlorine is produced. Chronic exposure to hydrogen chloride can lead to liver damage, bleeding of nose and gums, nasal and oral mucosal ulceration, conjunctivitis, yellowing of teeth and erosion of tooth enamel as well as dermatitis.

Exposure Routes:

>> Serious local effects by all routes of exposure. The substance can be absorbed into the body by inhalation.

>> inhalation, ingestion (solution), skin and/or eye contact

Inhalation Exposure

>> Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.

Skin Exposure

>> Redness. Pain. Serious skin burns. ON CONTACT WITH LIQUID: FROSTBITE.

Eye Exposure

>> Redness. Pain. Blurred vision. Severe burns. ON CONTACT WITH LIQUID: FROSTBITE.

>> irritation nose, throat, larynx; cough, choking; dermatitis; solution: eye, skin burns; liquid: frostbite; In Animals: laryngeal spasm; pulmonary edema

Target Organs:

Organs that are affected by exposure to this chemical. Information in this section reflects human data unless otherwise noted.

>> Respiratory

>> Eyes, skin, respiratory system

Adverse Effects:

An adverse effect is an undesired harmful effect resulting from a medical treatment or other intervention.

>> Dermatotoxin - Skin burns.

>> Toxic Pneumonitis - Inflammation of the lungs induced by inhalation of metal fumes or toxic gases and vapors.

>> Fibrogenic - Inducing tissue injury and fibrosis (scarring).

>> ACGIH Carcinogen - Not Classifiable.

Toxicity Data:

>> LC50 (rat) = 3,124 ppm/1 hr

Minimum Risk Level:

The minimal risk level (MRL) is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health

>> Occupational exposure limits for hydrogen chloride (gas) have been set at 5 ppm

Treatment:

Treatment when exposed to toxin

>> The mainstay of treatment of any acid burn is copious irrigation with large amounts of tap water. To be most effective, treatment should be started immediately after exposure, preferably before arrival in the emergency department. Remove any contaminated clothing. Do not attempt to neutralize the burn with weak reciprocal chemicals (i.e. alkali for acid burns), because the heat generated from the chemical reaction may cause severe thermal injury.

Interactions:

>> Helicobacter pylori is the major causative factor of ulcer but the use of ibuprofen and other non-steroidal anti-inflammatory drugs have also been implicated in development of ulcer. The purpose of the present study was to determine the anti-ulcer effect of glucosamine. The protective effect of glucosamine on ibuprofen-induced peptic ulcer in male albino rats was studied with respect to changes in the volume of gastric juice, acid output, pepsin activity, activities of membrane bound ATPases, protein content, glycoprotein components and histopathology. Oral administration of ibuprofen caused significant increase in the number of lesions in the gastric mucosa, increases in the volume of gastric juice and acidity, and decreased activity of pepsin. The levels of protein content and glycoprotein components (hexose, hexosamine and sialic acid) and ATPase activities were also observed. Oral pretreatment with glucosamine resulted in significant reduction in the number of lesions in the gastric mucosa and decreases in the volume of gastric juice and acidity. The pepsin activity was also maintained at near normalcy. Prior oral administration of glucosamine significantly prevented the ibuprofen-induced depletion of protein and glycoprotein components and

maintained the activities of membrane bound ATPases as compared to untreated ulcer induced group of rats. The anti-ulcerogenic activity of glucosamine might be ascribable to its ability to neutralize the hydrochloric acid secreted into the stomach and to its capability to strengthen the mucosal barrier by increasing mucosal glycoprotein synthesis and to its free radical scavenging property. Histopathological investigations of the mucosal tissue also support the anti-ulcerogenic effect of glucosamine.

Antidote and Emergency Treatment:

>> /PREHOSPITAL/ Consult with the base station physician or the regional poison control center for advice regarding triage of multiple victims. Patients with evidence of significant exposure such as skin or eye irritation, pain, or breathing difficulties should be transported to a medical facility for evaluation. Others may be discharged from the scene after their names, addresses, and telephone numbers are recorded. Those discharged should be advised to seek medical care promptly if symptoms develop

Human Toxicity Excerpts:

>> /HUMAN EXPOSURE STUDIES/ In one of eight asthmatic volunteers exposed to an aerosol of unbuffered hydrochloric acid at pH 2 for 3 min during tidal breathing, airway resistance was increased by 50%. Bronchoconstriction was increased in all eight subjects after inhalation of a mixture of hydrochloric acid and glycine at pH 2.

Non-Human Toxicity Excerpts:

>> /LABORATORY ANIMALS: Acute Exposure/ ... This study examined the roles of vascular dysfunction and inflammation to the esophageal injury response to different caustic substances in mice. The esophageal responses to sodium hydroxide (10%, 5%, and 2.5%), potassium hydroxide (10%, 5%, and 2.5%), sodium hypochlorite (5.25%), and hydrochloric acid (10%, pH 2) were evaluated by intravital videomicroscopy and histopathology. Intravital microscopy was used to monitor changes in the diameter of arterioles and venules, the adhesion and movement of leukocytes in venules, and the time of cessation of arteriolar blood flow in mouse esophagus. The esophageal mucosa was exposed to caustic substances for 0 to 60 minutes before evaluation. The higher concentrations of sodium hydroxide and potassium hydroxide elicited rapid stasis in both arterioles and venules, which was accompanied by arteriolar constriction and thrombosis. An accumulation of adherent leukocytes in venules was not observed with any agent. Histopathological evaluation revealed marked cellular and interstitial edema in the mucosa with alkali, whereas hydrochloric acid and sodium hypochlorite decreased the thickness epithelial layer. These findings suggest that ischemia and thrombosis are dominant processes, whereas inflammation is less important in the pathogenesis of acute corrosive injury to the esophageal mucosa.

Non-Human Toxicity Values:

>> LC50 Rat inhalation 3124 ppm/1 hr

Populations at Special Risk:

>> Children may be more vulnerable to corrosive agents than adults because of the relatively smaller diameter of their airways. Children may also be more vulnerable to gas exposure because of increased minute ventilation per kg and failure to evacuate an area promptly when exposed.

12. Ecological Information

Resident Soil (mg/kg)

>> 2.80e+07

Industrial Soil (mg/kg)

>> 1.20e+08

Resident Air (ug/m3)

>> 2.10e+01

Industrial Air (ug/m3)

>> 8.80e+01

Tapwater (ug/L)

>> 4.20e+01

MCL (ug/L)

>> 5.00e+01

Chronic Inhalation Reference Concentration (mg/m3)

>> 2.00e-02

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Animal Concentrations:

Concentrations of this compound in animals.

>> Hydrochloric acid is found in the digestive tract of most mammals(1).

13. Disposal Considerations

Spillage Disposal

>> Evacuate danger area! Consult an expert! Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus. Ventilation. Remove gas with fine water spray.

Disposal Methods

>> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number D002, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

>> Product: Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company.

>> Contaminated packaging: Dispose of as unused product.

>> Pesticide disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Container disposal:- Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. /Emulso Germicidal Bowl Cleaner Disinfectant/

>> For more Disposal Methods (Complete) data for HYDROGEN CHLORIDE (6 total), please visit the HSDB record page.

14. Transport Information

DOT

Hydrogen chloride (gas only)
2.3

IATA

Hydrogen chloride (gas only)
2.3, 8

15. Regulatory Information

DHS Chemicals of Interest (COI):

This section provides the Department of Homeland Security (DHS) Chemicals of Interest (COI) and related information (Ref: 6 eCFR part 27 - https://www.ecfr.gov/current/title-6/chapter-I/part-27).

Chemicals of Interest(COI)

>> Hydrochloric acid (conc.37% or greater)

Release: Minimum Concentration (%)

>> 37.00

Release: Screening Threshold Quantities (in pounds)

>> 15,000

Security Issue: Release - Toxic

>> Toxic chemical that can be released at a facility.

Theft: Minimum Concentration (%)

>> A Commercial Grade

Theft: Screening Threshold Quantities (in pounds unless otherwise noted)

>> 500

Security Issue: Theft - WME

>> Weapons of Mass Effect chemical material that, if stolen or diverted, can be converted into weapons using simple chemistry, equipment, or techniques.

Clean Water Act Requirements:

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under CWA, the U.S. Environmental Protection Agency (EPA) developed the Toxic Pollutant List (40 CFR Part 401.15) and the Priority Pollutant List (40 CFR Part 423, Appendix A). These lists are to be used by EPA and States to develop the Effluent Guidelines regulations and ensure water quality criteria and standards.

>> Hydrochloric acid is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. This designation includes any isomers and hydrates, as well as any solutions and mixtures containing this substance.

Regulatory Information

The Australian Inventory of Industrial Chemicals

>> Chemical: Hydrochloric acid

DEA Listed Chemicals

>> List II Chemical: A chemical, other than a List I chemical, specified by regulation that, in addition to legitimate uses, is used in manufacturing a controlled substance in violation of the Act.

REACH Registered Substance

>> Status: Active Update: 25-04-2023 https://echa.europa.eu/registration-dossier/-/registered-dossier/15859

>> Status: Active Update: 23-12-2022 https://echa.europa.eu/registration-dossier/-/registered-dossier/23211

>> Status: Active Update: 18-12-2014 https://echa.europa.eu/registration-dossier/-/registered-dossier/7139

New Zealand EPA Inventory of Chemical Status

>> Hydrogen chloride: HSNO Approval: HSR004090 Approved with controls

16. Other Information

Toxic Combustion Products:

Toxic products (e.g., gases and vapors) produced from the combustion of this chemical.

>> Special hazards arising from the substance or mixture: Hydrogen chloride gas

Other Safety Information

Chemical Assessment

>> IMAP assessments - Hydrochloric acid: Human health tier III assessment

>> IMAP assessments - Hydrochloric acid: Environment tier I assessment

>> IMAP assessments - Hydrochloric acid: Human health tier II assessment

"The information provided is believed to be accurate but is not comprehensive and should be used as a reference. It reflects our current knowledge and is intended for safety guidance related to the product. This document does not constitute a warranty of the product's properties. Ionz is not responsible for any damages resulting from handling or contact with the product incorrectly."