

MATERIAL SAFETY DATA SHEET

Section 1: Identity and Manufacturer's Information

Manufacturer's Name	Miyaki Co.Ltd.		
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Section 2: Product Identification

Product Name : IMPALAS
MSDS Number : MS3004
Date of Prepared : 12/13/2007
Classification of a single product and a mixture : Mixture
General Name : Powerful detergent for stone
An ingredient and a content : Hydrochloric Acid(less than 9%), Ammonium fluoride, Citric Acid, Surface-active agent, Water
The U.N. classification and the U.N. number : Hydrochloric Acid (Hazard Class : 8 UN : 1789)

Section 3: Hazards Identification (As Hydrochloric acid concentrated)

Emergency Overview : POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE. 《Potential Health Effects》 Inhalation : Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death. Ingestion : Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea. Swallowing may be fatal. Skin Contact : Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin. Eye Contact : Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage. Chronic Exposure : Long-term exposure to concentrated vapors may cause erosion of teeth. Long term exposures seldom occur due to the corrosive properties of the acid. Aggravation of Pre-existing Conditions : Persons with pre-existing skin disorders or eye disease may be more susceptible to the effects of this substance.

Section 4: First-Aid Measure (As Hydrochloric acid concentrated)

Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately. Ingestion : DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately. Skin Contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately. Eye Contact : Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
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Section 5: Fire-Fighting Measure

Fire : Extreme heat or contact with metals can release flammable hydrogen gas. Explosion : Not considered to be an explosion hazard. Fire Extinguishing Media : If involved in a fire, use water spray. Neutralize with soda ash or slaked lime. Special Information : In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving hydrochloric acid. Stay away from ends of tanks. Cool tanks with water spray until well after fire is out. Fire-extinguishing agent : Powder, carbon dioxide, an alcoholic [-proof] bubble

Section 6: Accidental Release Measure

•The circumference is surrounded with a rope etc. and entry of people is forbidden. •In an indoor case, it ventilates enough. •The thing used as the neighboring source of ignition is removed promptly. In the case of work, a suitable protection implement (rubber or a vinyl glove, a protection mask, an apron, goggles) is worn. •When influence may be done to a citizen, a related government office and a supplier are contacted. •When the leakage is little, after making a towel etc. absorb, in being abundant in a container, in it, the surroundings are enclosed with sand, the ground, etc., and it prevents an outflow in it, and collects as much as possible in it. •It flows into a sewer, river ocean space, etc.and bends and needs - it is careful •The rule of an area is followed when it reveals underwater.
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Section 7: Handling and Storage

- Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage.
- Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials.
- Do not wash out container and use it for other purposes.
- When diluting, the acid should always be added slowly to water and in small amounts.
- When opening metal containers, use non-sparking tools because of the possibility of hydrogen gas being present.
- Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.
- Keep out of reach of children.

Section 8: Exposure Prevention Equipment

Airborne Exposure Limits: For Hydrochloric acid:

- OSHA Permissible Exposure Limit (PEL):5 ppm (Ceiling)
- ACGIH Threshold Limit Value (TLV):2 ppm (Ceiling), A4 Not classifiable as a human carcinogen

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded, a full facepiece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area. The partial exhaust is prepared.

Section 9: Physical / Chemical Characteristics

Appearance: Colorless, fuming liquid.

Odor: Pungent odor of hydrogen chloride.

Specific gravity (density) : 1.10 (30°C)

Solubility : It mixes with water completely.

Hydrogen-ion density : 1.0 (25°C)

Section 10: Stability and Reactivity (As Hydrochloric acid concentrated)

Stability: Stable under ordinary conditions of use and storage. Containers may burst when heated.

Hazardous Decomposition Products: When heated to decomposition, emits toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.

Hazardous Polymerization: Will not occur.

Incompatibilities: A strong mineral acid, concentrated hydrochloric acid is incompatible with many substances and highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulfides, sulfites, and formaldehyde.

Conditions to Avoid: Heat, direct sunlight.

Stability, reactivity : Stable in the usual handling.

Section 11: Toxicological Information

Inhalation rat LC50: 3124 ppm/1H; oral rabbit LD50: 900 mg/kg (Hydrochloric acid concentrated); investigated as a tumorigen, mutagen, reproductive effector.

Oral rat LD50: 1530 mg/kg; investigated as a mutagen. (Phosphoric Acid concentrated)

Ingredient	CAS No
Hydrochloric Acid	(7647-01-0)
Water	(7732-18-5)

Section 12: Ecological Information (As Hydrochloric acid concentrated)

Environmental Fate: When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater.

Environmental Toxicity: This material is expected to be toxic to aquatic life.

Section 13: Disposal Consideration

- Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility.
- Processing, use or contamination of this product may change the waste management options.
- State and local disposal regulations may differ from federal disposal regulations.
- Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14: Transport Information

Common matter : On the occasion of conveyance, it confirms that there is no leak in a container, it loads so that there may not be a fall and fall damage, and prevention of collapse of cargo piles is ensured.

The publication of notes on handling and storage is followed.

When it corresponds to Fire Service Law, labor security and hygiene law, and a poison highly poisonous substance method, the transportation method set to each applicable law is followed.

Fire and direct rays are avoided.

Marine transportation : The place set to Law for Safety of Vessels is followed.

Air transportation : The place set to the Aviation Act is followed.

The U.N. classification and the U.N. number : Hydrochloric Acid (Hazard Class : 8 UN : 1789)

Section 15: Regulatory Information

Law for Safety of Vessels : Corrosives liquids

Aviation law : Corrosives liquids

Wastes Disposal and Public Cleaning Law : It is management industrial waste specially.

Section 16: Other Information

The reference of written contents : Up to a guarantee-of-quality room

Based on the information acquired at present, about the danger detrimental nature of a product, since the above information is not enough, mind.

Especially in special handling, notes need consideration for the usual handling.

Values, such as a content and physical character, should be reference values among written contents, and since it is not a guarantee value, mind.