

MATERIAL SAFETY DATA SHEET

*This Material Safety Data Sheet complies with the Canadian Controlled Product Regulations.
Abbreviations used: N/ap., Not applicable, N/av., Not available, N/est., Not established, TLV, Threshold Limit Value,*

SECTION 1 - IDENTIFICATION

PRODUCT IDENTIFIER:	ZAAL HI-TEMP AUTO DISH DETERGENT M-1
PRODUCT USE:	Industrial & Institutional General Purpose Cleaning/Degreasing Agent
SUPPLIER:	Gemini Packaging Limited 150-12071 Jacobson Way, Richmond, British Columbia, Canada, V6W 1L5 Telephone: (604) 278-3455 Emergency Telephone: (613) 996-6666 collect 24 Hrs.

SECTION 2 - COMPOSITION

HAZARDOUS INGREDIENTS	% (W/W)	CAS NUMBER	LD50	LC50	EXPOSURE LIMITS
Sodium hydroxide	10-40	1310-73-2	40 mg/kg (IP/mouse)	N/est.	2 mg/m ³ of air (ACGIH TLV/CL)

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

This product is an alkaline cleaning agent. Causes severe eye and mild skin irritation in humans. Can decompose at high temperatures emitting acrid smoke and irritating fumes. Sealed containers may rupture from exposure to water vapours released by intense heat.

EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:

INHALATION: Product is irritating to the nose, throat and respiratory tract.

SKIN CONTACT: Cause severe burns, symptoms of severe skin irritation such as reddening, swelling, rash, scaling, or blistering. Excessive contact may cause drying by absorption of moisture and oils.

EYE CONTACT: Contact with eyes for more than a few seconds will destroy the tissues resulting in loss of eye or impaired vision due to scarring. Causes eye burns.

INGESTION: Results in severe damage to mucous membranes. Burning pain from mouth to throat and abdominal. Can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

INHALATION: Breathing dust may irritate the nose and throat and cause coughing and chest discomfort.

EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Prolonged contact with eyes may cause permanent eye lesions. Prolonged skin contact may cause dermatitis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing eye, skin, respiratory tract disorders may be aggravated by exposure.

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SECTION 4 - FIRST AID MEASURES

INHALATION: Move victim to fresh air. Give artificial respiration or administer oxygen, if indicated. Obtain immediate medical attention.

SKIN CONTACT: Obtain immediate medical attention from the nearest hospital/medical center. Immediately remove contaminated clothing and flush skin with running water for at least 15 minutes. Wash affected area thoroughly with soap and water. Launder clothes before reuse.

EYE CONTACT: Seek immediate medical attention. Check for and remove any contact lenses. Flush contaminated eye(s) with lukewarm, gently flowing water for at least 20 minutes. Forcibly hold eyelids apart to ensure irrigation of all eye tissue. Take care not to contaminate unaffected eye. If irritation persists repeat the flushing process. Do not transport victim until the recommended flushing time has been achieved unless flushing can continue during transport.

INGESTION: Never give anything by mouth if victim is unconscious, rapidly losing consciousness or convulsing. If conscious: Rinse mouth thoroughly with cold water and give ½ to 1 glass of water to dilute ingested material. Drink a large quantity of milk, egg whites or gelatin solution. If not available, drink water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward, head down, to reduce risk of aspiration. Obtain immediate medical attention.

GENERAL COMMENTS: All first-aid procedures should be reviewed by a physician familiar with the product and its conditions of use in the workplace. Physician should treat this symptomatically.

INGALATION: Move victim to fresh air. Give artificial respiration or administer oxygen if necessary.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT:	N/ap.	LOWER FLAMMABILITY LIMITS:	N/ap.	SENSITIVITY TO MECHANICAL IMPACT:	Not expected to be sensitive
AUTOIGNITION TEMPERATURE:	N/ap.	UPPER FLAMMABILITY LIMITS:	N/ap.	SENSITIVITY TO STATIC DISCHARGE:	Not expected to be sensitive

EXTINGUISHING MEDIA: Use media suitable to control surrounding fire.

FIRE FIGHTING INSTRUCTIONS: Fire-exposed containers should be kept cool by spraying water. Excessive heat may cause containers to explode, and release of product in this manner will usually cause a more intense fire due to release of oxygen. Strong oxidizer which can, with contact with combustibles, cause fire. Spilled material will cause floors and walkways to become slippery. Firefighters must use self-contained breathing apparatus and protective clothing.

HAZARDOUS COMBUSTION PRODUCTS: Product emits acrid smoke and irritating fumes under high temperature.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 3 - Causes temporary and only minor injury, **FLAMMABILITY:** 1 - Normally stable and will not burn unless heated excessively. **REACTIVITY:** 1 - Normally stable, but can become unstable at elevated temperatures and pressures. **SPECIFIC HAZARDS:** N/ap.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION: Wear protective clothing, rubber gloves, chemical goggles or a full face shield. Avoid direct contact with material. Minimize airborne spreading of the material. If material is airborne, wear respirator.

ENVIRONMENTAL PRECAUTIONS: Prevent release into waterways and sewers.

REMEDIATION MEASURES: Person not wearing protective equipment should be excluded from the area. Remove combustibles. Stop or reduce leak if it can be done safely. Contain spill with earth, sand or absorbent material which does not react with spilled material. Contaminated absorbent material may pose the same hazards as the spilled product. Put material in suitable, covered and labeled containers. Flush area with large volume of water and contain. For large spills, contact fire and emergency services and supplier for advice. Spillages or uncontrolled discharges into water courses, drains or sewers must be immediately alerted to applicable government authorities.

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SECTION 7 - HANDLING AND STORAGE

HANDLING: Use good housekeeping practices. Avoid contamination of product with other materials. Use in a well ventilated area. Mechanical ventilation should be corrosion and explosion proof.

STORAGE: Store away from combustibles and incompatible materials in tightly closed containers. Keep containers in a cool area away from sparks and flames.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING CONTROLS: Local exhaust ventilation required. Worker exposure to vapor/mist must be kept as low as reasonably achievable.

RESPIRATORY PROTECTION: No respiratory protection is warranted under normal use conditions.

EXPOSURE LIMITS: See Section 2.

SKIN PROTECTION: Wear resistant gloves and work clothes covering arms and legs.

EYE AND FACE PROTECTION: Use chemical safety goggles, a face shield may also be necessary.

OTHER: Emergency showers and eye-wash stations should be readily available.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear red liquid	MELTING POINT:	N/ap.
ODOUR:	Odorless	BOILING POINT:	100°C
pH:	12.5 to 13.5	CRITICAL TEMPERATURE:	N/ap.
VAPOUR PRESSURE:	N/ap.	RELATIVE DENSITY:	1.195 to 1.205
SOLUBILITY:	Soluble in water	PARTION COEFFICIENT: n-OCTANOL/WATER	N/av.
VAPOUR DENSITY:	N/ap.	EVAPORATION RATE:	N/ap.

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Normally stable.

HAZARDOUS POLYMERIZATION: Will not undergo hazardous polymerisation.

INCOMPATIBILITY: Incompatible with strong acids. Most common metals. Chlorinated hydrocarbons. Combustible materials. Organic materials. Halogenated hydrocarbons. Aluminum, zinc (galvanized metal), magnesium and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposes at high temperatures releasing toxic fume of Na₂O.

SECTION 11 - TOXICOLOGICAL INFORMATION

ROUTE(S) OF ENTRY: Inhalation (minor), Ingestion (major), Eye contact (major), Skin contact (major)

ACUTE EXPOSURE:

No specific animal data is available for this product.

CHRONIC EXPOSURE:

No specific animal data is available for this product.

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SECTION 11 - TOXICOLOGICAL INFORMATION (con't)

IRRITANCY:	SENSITIZATION:
Expected to cause skin, eye, respiratory and gastrointestinal irritation.	Not reported.
MUTAGENICITY:	REPRODUCTIVE TOXICITY:
Not reported. Probably not mutagenic.	May cause human reproductive effects.
TERATOGENICITY:	CARCINOGENICITY:
Not reported. Probably not teratogenic.	Not listed as human carcinogen by ACGIH, IARC or OSHA
POTENTIAL FOR ACCUMULATION:	SYNERGISTIC PRODUCTS:
Not expected to accumulate.	None known.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY: Be harmful to aquatic life.

ENVIRONMENTAL FATE: This product has considerable solubility and mobility in water and non-significant absorption into soil.

Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lake, streams, ponds, or rivers.

SECTION 13 - DISPOSAL CONSIDERATIONS

DEACTIVATING CHEMICALS: Carefully dilute the product with water and allow the solution to naturally degrade.

WASTE DISPOSAL METHODS: Place used and contaminated material and packagings into suitable containers and dispose of as controlled waste. Review and follow all local, provincial, and federal regulations.

SECTION 14 - TRANSPORT INFORMATION

ICAO TECHNICAL INSTRUCTIONS, IMDG CODE: N/ap.

US HAZARDOUS MATERIALS REGULATIONS: N/ap.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: Class 8 (Corrosive), UN 1824, PG II.

SECTION 15 - REGULATORY INFORMATION

CANADIAN FEDERAL REGULATIONS:

CEPA, DOMESTIC SUBSTANCES LIST: All ingredients are listed.

WHMIS CLASSIFICATION: Class E (**corrosive**).

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: January 18, 2007

PREPARED BY: Gemini Packaging Ltd.

DECLARATION: This Material Safety Data Sheet meets or exceeds all the requirements of the Canadian Controlled Product Regulations.