MATERIAL SAFETY DATA SHEET

Date Updated: 03-12-2019

Section 1 - Product and Company Information

| Product Name: | 5-chloropyrazine-2,3-diamine |
|------------------|--|
| Product Number: | Pro-61858 |
| Company: | Anichem, Inc. |
| Address: | 195 Black Horse Lane, North Brunswick, NJ 08902, USA |
| Technical Phone: | 1-732-8216500 |
| Fax: | 1-732-8216008 |
| Emergency Phone: | 1-732-6908972 |

Section 2 - Composition/Information on Ingredient

| Substance Name: | 5-chloropyrazine-2,3-diamine |
|-----------------|------------------------------|
| CAS #: | 1259479-81-6 |
| Formula: | C4H5CIN4 |

Section 3 - Hazards Identification

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|--|----------------------------|---|--|
| | 1) GHS pictogram | | |
| | 2) GHS signal word | Warning | |
| | 3) GHS hazard statement(s) | | |
| | H302 | Harmful if swallowed | |
| | H315 | Causes skin irritation | |
| | H319 | Causes serious eye irritation | |
| | H335 | May cause respiratory irritation | |
| GHS precautionary statement(s) | | | |
| | P261 | Avoid breathing dust/fume/gas/mist/vapours/spray. | |
| | P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove | |
| | | contact lenses, if present and easy to do. Continue rinsing. | |
| | | | |

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. INHALATIÓN EXPOSURE If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DERMÁL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician. EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

| FLASH POINT: | N/A |
|----------------------------------|--|
| AUTOIGNITION TEMP: | N/A |
| FLAMMABILITY: | N/A |
| Explosion Limits-Lower: NA | |
| Explosion Limits-Upper: NA | |
| NFPA Rating: | health: 1; flammability: 0; instability: 0 |
| EXTINGUISHING MEDIA: | |
| Suitable: Water spray. Carbon of | lioxide, dry chemical powder, or appropriate |

te foam r appropi ary c аі ро FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL Evacuate area. PROCEDURE(S) OF PERSONAL PRECAUTION(S) Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. METHODS FOR CLEANING UP Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eves, skin, and clothing, Keep container tightly closed. Avoid ingestion and inhalation.

Storage:

Keep container closed when not in use. Store in a tightly closed container. Store in a cool. drv. well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS Safety shower and eye bath. Use only in a chemical fume hood. PERSONAL PROTECTIVE EQUIPMENT Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows airpurifying respirators are appropriate use a full-face particle respirator type N100 (US) Hand: Compatible chemical-resistant gloves. Eve: Chemical safety goggles. GENERAL HYGIENE MEASURES Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

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Section 9 - Physical/Chemical Properties

Appearance Physical State: Solid Property Value At Temperature or Pressure Molecular Weight: 144.56 pH N/A BP/BP Range N/A MP/MP Range N/A Freezing Point N/A Vapor Pressure N/A Vapor Density N/A Saturated Vapor Conc. N/A SG/Density N/A Bulk Density N/A Odor Threshold N/A Water Content N/A Solvent Content N/A Evaporation Rate N/A Viscosity N/A Surface Tension N/A Flash Point N/A Explosion Limits N/A

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Flammability N/A Autoignition Temp N/A Refractive Index N/A Optical Rotation N/A Solubility N/A N/A = not available

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Materials to Avoid: Strong oxidizing agents, Strong bases, Strong reducing agents. Incompatibilities with Other Materials: Not available HAZARDOUS DECOMPOSITION PRODUCTS Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, nitrogen oxide. irritating and toxic fumes and gases, HAZARDOUS POLYMERIZATION Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE Skin Contact: Causes skin irritation. Multiple Routes: Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract. May be harmful by inhalation, ingestion, or skin absorption. SIGNS AND SYMPTOMS OF EXPOSURE To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12 - Ecological Information No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated as a hazardous material Hazard Class: UN Number: Packing Group: Canada TDG Shipping Name: Not available Hazard Class: UN Number: Packing Group:

Section 15 - Regulatory Information

US Federal TSCA:

not listed on the TSCA Inventory. It is for research and development use only. Health & Safety Reporting List:

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules:

None of the chemicals in this product are under a Chemical Test Rule.

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SECTION 12B

None of the chemicals are listed under TSCA Section 12b. TSCA Significant New Use Rule None of the chemicals in this material have a SNUR under TSCA. CERCLA Hazardous Substances and corresponding RQs None of the chemicals in this material have an RQ. SARA Section 302 Extremely Hazardous Substances None of the chemicals in this product have a TPQ. SECTION 313 No chemicals are reportable under Section 313. Clean Air Act: This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors. Clean Water Act: None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA. OSHA: STATE not present on state lists from CA, PA, MN, MA, FL, or NJ. California Prop 65 California No Significant Risk Level: None of the chemicals in this product are listed. European/International Regulations European Labeling in Accordance with EC Directives Hazard Symbols: Not available Risk Phrases: Safety Phrases: S 24/25 Avoid contact with skin and eves. S 28A After contact with skin, wash immediately with plenty of water. S 37 Wear suitable gloves. S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). WGK (Water Danger/Protection): Not available Canada Canadian WHMIS Classifications: Not available This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. This product is not listed on Canada's Ingredient Disclosure List. Section 16 - Other Information DISCLAIMER For R&D use only. Not for drug, household or other uses. WARRANTY The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our

knowledge and is applicable to the product with regard to appropriate safety precautions. It does

not represent any guarantee of the properties of the product. Anichem shall not be held liable for

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any damage resulting from handling or from contact with the above product.