

Safety Data Sheet

Preact Galvanizing Flux -Dry HA, HA-F, DB, BG, BG-F, BG-NW Soldering Flux100,
PRACT® EV-F, PRACT BG-FV, GPS-2S-F, HAF-E, BGF-N

MRD-217

*** Section 1 - Chemical Product and Company Identification ***

Product Identifier:

Preact Galvanizing Flux -Dry HA, HA-F, DB, BG, BG-F, BG-NW Soldering Flux100, PRACT® EV-F, PRACT
BG-FV, GPS-2S-F, HAF-E, BGF-N

Chemical Name

Inorganic Salt Mixture

Recommended Use

Various Industrial Applications

Manufacturer Information

MINERAL RESEARCH & DEVELOPMENT
5910 Pharr Mill Road
Harrisburg, NC 28075

Phone: 704-454-4811
FAX: 704-454-7390
CHEMTREC: (800) 424-9300
US and Canadian Shipping Only- 1-703-527-3887

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 – Hazard Identification ***

GHS Classification

Serious Eye Damage/Eye Irritation, Category 1
Hazardous to Aquatic Life – Acute, Category 1
Hazardous to Aquatic Life – Chronic, Category 1
Skin Corrosion, Category 1B
Acute Toxicity - Oral, Category 4

GHS Label Elements

Symbol(s)



Signal Word

Danger

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Hazard Statements

Causes severe skin burns and eye damage.
Causes serious eye damage.
Harmful if swallowed.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention

Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN (OR HAIR): Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.
IF INHALED: If inhaled, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Storage

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
12125-02-9	Ammonium Chloride	0 - 71
7646-85-7	Zinc chloride	29 - 86
7647-14-5	Sodium chloride	0 - 7
7447-40-7	Potassium chloride	0 - 34

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication). This product is considered hazardous under the criteria specified in the Canadian Workplace Hazardous Materials Information System (WHMIS).

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*** Section 4 - First Aid Measures ***

Description of Necessary Measures

Eyes Contact

IF IN EYES: Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

Skin Contact

IF ON SKIN (or hair): Flush with large amounts of water while removing contaminated clothing. Continue flushing skin with water for 15 minutes. If skin irritation occurs: Get medical advice/attention. Contaminated leather articles, including shoes, that cannot be decontaminated should be discarded.

Ingestion

IF SWALLOWED: If material is ingested, immediately contact a physician or poison control center. Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Inhalation

IF INHALED: Immediately remove the affected person to fresh air. If the affected person is not breathing, have qualified personnel apply artificial respiration. Do NOT perform mouth-to-mouth resuscitation. Call a physician immediately.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

Product is a negligible fire hazard.

Hazardous Combustion Products

Zinc compounds, Hydrogen Chloride, Ammonia, Nitrogen Oxides and Chlorine.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions

This product is corrosive, and presents a severe contact hazard to fire-fighters. Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products. If this product is involved in a fire, fire run-off water should be contained to prevent possible environmental damage.

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe



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*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean up. Contain the discharged material and dike the spilled material where possible. Prevent entry into sewers, drains, underground or confined spaces, water intakes and waterways.

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Avoid the generation of dusts during clean-up. Sweep up or vacuum. Shovel material into appropriate container for disposal. If necessary, neutralize remaining area with sodium bicarbonate or other acid neutralizing agent and triple rinse with water. Do not allow the spilled product to enter public drainage system or open water courses.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

Isolate exposure. Wear appropriate personal protective equipment. Follow all Local, State, Federal and Provincial regulations for disposal.

*** Section 7 - Handling and Storage ***

Handling Procedures

Do not get this material in your eyes, on your skin, or on your clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. Do not eat, drink or use tobacco products when handling this material. Use this product with adequate ventilation. Launder work clothes frequently. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual liquid or vapors. Empty containers should be handled with care.

Storage Procedures

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials. Material should be stored in secondary containers, or in a diked area, as appropriate. Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits

Zinc chloride (7646-85-7)

ACGIH: 1 mg/m³ TWA (fume)

2 mg/m³ STEL (fume)

OSHA (Final): 1 mg/m³ TWA (fume)

OSHA (Vacated): 1 mg/m³ TWA

2 mg/m³ STEL

NIOSH: 1 mg/m³ TWA (fume)

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2 mg/m³ STEL (fume)

Ammonium chloride (12125-02-9)

ACGIH: 10 mg/m³ TWA (fume)
20 mg/m³ STEL (fume)

OSHA (Vacated): 10 mg/m³ TWA
20 mg/m³ STEL

NIOSH: 10 mg/m³ TWA (fume)
20 mg/m³ STEL (fume)

Engineering Controls

Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses; chemical goggles (if splashing is possible).

Personal Protective Equipment: Skin

Use impervious gloves. Use of an impervious apron is recommended.

Personal Protective Equipment: Respiratory

Respiratory protection; not normally required for ambient air concentrations not exceeding the Occupational Exposure Limit. If ventilation is not sufficient to effectively prevent buildup of vapors or mists, appropriate approved NIOSH respiratory protection must be provided. Respirators should be selected by and used under the direction of a trained health and safety professional following the requirements found in OSHA's respirator standard (29 CFR 1901.134) and ANSI's standard for respiratory protection (Z88.2-1992), applicable U.S. regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. A written respiratory protection program, including provisions for medical certification, training, fit-testing, exposure assessments, maintenance, inspection, cleaning, and convenient, sanitary storage, must be implemented.

Personal Protective Equipment: General

Eyewash fountains and emergency showers are required. An emergency spill response will necessitate the use of more stringent personal protective equipment.

*** Section 9 - Physical & Chemical Properties ***

Appearance: White
Physical State: Solid
Vapor Pressure: Not available

Odor: Odorless
Odor Threshold: Not Applicable
pH: <2 (Concentrated solutions); 4.0 (10% solution)

Vapor Density: Not available
Boiling Point / Boiling Range: 732 °C (1,350 °F)
Melting Point / Freezing Point: 290 °C (554 °F)/ Not available

Specific Gravity: Not available
Evaporation Rate: Not available
Relative Density: Not available

Solubility (H₂O): Soluble
Flash Point: Not Flammable
Upper Flammable Limit (UFL): Not Applicable

Auto-ignition Temperature: Not available
Decomposition Temperature: Not available
Lower Flammable Limit (LFL): Not Applicable

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Viscosity: Not available
Flammability: Not available

Partition Coefficient (n-octanol /
water): Not available

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Avoid contact with incompatible materials.

Incompatibility

This product is incompatible with strong bases, strong oxidizing agents, alkali metals and their carbonate, lead and silver salts. Corrosive to metals.

Hazardous Decomposition

Decomposition may yield zinc compounds, hydrogen chloride, ammonia, nitrogen oxides, and chlorine.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity

Acute exposure can cause severe irritation and burns of the eyes, skin, gastrointestinal tract and respiratory tract. Zinc chloride is an eye, skin and respiratory system irritant. Inhalation of zinc fumes may result in temporary metal fume fever. Other symptoms such as slight leukocytosis, respiratory disease and hypocalcemia have been reported from occupational exposure to zinc compounds.

Component Analysis - LD50/LC50

Ammonium Chloride (12125-02-9)

Oral LD50 Rat: 1,410 mg/kg

Zinc chloride (7646-85-7)

Oral LD50 Rat: 350 mg/kg
50 mg/m³ IDLH (fume)

Sodium chloride (7647-14-5)

Inhalation LC50 Rat: >42 g/m³/1H; Oral LD50 Rat: 3 g/kg; Dermal LD50 Rabbit: >10 g/kg

Potassium chloride (7447-40-7)

Oral LD50 Rat: 2,600 mg/kg

Information on Likely Routes of Exposure

Inhalation

This product is irritating to the respiratory system. Damage to the tissues of the respiratory system may occur. Excessive inhalation of this product may cause headache, dizziness, blurred vision, nausea and vomiting. Severe inhalation can lead to pulmonary edema, pneumonitis and death. Inhalation of Zinc Chloride fumes may cause metal fume fever with resulting flu-like symptoms.

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Ingestion

Ingestion may produce irritation and burns of the gastrointestinal tract and gastrointestinal disturbances including irritation, nausea, and diarrhea. Ingestion of large amounts may be fatal.

Skin Contact

This product may be severely irritating to the skin or cause burns, depending on duration of exposure.

Eye Contact

Contact with the eyes can cause severe irritation or burning of eyes. Overexposure will cause irritation or burns, depending on duration, pain, redness, and may result in blindness.

Immediate Effects

May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system.

Delayed Effects

Prolonged or repeated skin contact may result in redness, burning sensation or dermatitis. Components may cause damage to the heart, respiratory system and kidney.

Medical Conditions Aggravated by Exposure

Pre-existing eye, skin and/or respiratory tract conditions.

Irritation/Corrosivity Data

Respiratory tract irritation, skin irritation, eye irritation

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available for the mixture

Germ Cell Mutagenicity

No data available for the mixture.

Carcinogenicity

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity

No data available for the mixture.

Specific Target Organ Toxicity - Single Exposure

No information available.

Specific Target Organ Toxicity - Repeated Exposure

No information available.

Aspiration Hazard

No information available.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Due to the acidic nature of this product, a release of this product in a river or other body of water (especially in large volumes) will kill fish and other aquatic life.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Ammonium chloride (12125-02-9)

Test & Species

Conditions

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24 Hr LC50 Lepomis macrochirus	725 mg/L	
96 Hr LC50 Cyprinus carpio	209 mg/L	static
24 Hr EC50 water flea	202 mg/L	

Sodium chloride (7647-14-5)

Test & Species		Conditions
96 Hr LC50 Lepomis macrochirus	9,675 mg/L	flow-through
96 Hr LC50 Lepomis macrochirus	12,946 mg/L	static
96 Hr LC50 Pimephales promelas	7,650 mg/L	static
48 Hr EC50 Daphnia magna	1,000 mg/L	

Potassium chloride (7447-40-7)

Test & Species		Conditions
96 Hr LC50 Lepomis macrochirus	2,010 mg/L	static
72 Hr EC50 Scenedesmus subspicatus	2,500 mg/L	
48 Hr EC50 Daphnia magna	825 mg/L	

Environmental Fate

The components of this product are relatively stable under ambient, environmental conditions.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. As packaged this product is a D002 corrosive waste [40 CFR 261.21(a)(4)]; applicable to wastes consisting only of this product.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Corrosive solids, acidic, inorganic, n.o.s. (Zinc Chloride, Ammonium Chloride)

UN/NA #: UN3260 **Hazard Class:** 8 **Packing Group:** III

Required Label(s): CORROSIVE

ERG: #154



Canada Transportation of Dangerous Goods Information

Shipping Name: Corrosive solids, acidic, inorganic, n.o.s. (Zinc Chloride, Ammonium Chloride)

UN/NA #: UN3260 **Hazard Class:** 8 **Packing Group:** III

Required Label(s): CORROSIVE



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International Maritime Dangerous Goods Information

Shipping Name: Corrosive solids, acidic, inorganic, n.o.s. (Zinc Chloride, Ammonium Chloride)

UN/NA #: UN3260 **Hazard Class:** 8 **Packing Group:** III

Required Label(s): CORROSIVE

EmS: F-A, S-B



*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Zinc chloride (7646-85-7)

CERCLA: 1,000 lb final RQ; 454 kg final RQ

Ammonium chloride (12125-02-9)

CERCLA: 5,000 lb final RQ; 2270 kg final RQ

SARA 311/312: Acute Health: Yes Chronic Health: No Fire: No Pressure: No Reactive: No

Federal Insecticide, Fungicide, and Rodenticide Act

This material contains the following chemicals present on either the Listing of Pesticide Chemicals (40 CFR 180) or Pesticides Classified for Restricted Use as listed by FIFRA :

Ammonium Chloride (12125-02-9)

FIFRA Section number 180.910; Section number 180.940

Sodium chloride (7647-14-5)

FIFRA Section number 180.950

Potassium chloride (7447-40-7)

FIFRA Section number 180.950

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Zinc chloride	7646-85-7	Yes	Yes	Yes	Yes	Yes	Yes
Ammonium chloride	12125-02-9	Yes	Yes	Yes	Yes	Yes	Yes

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Component Analysis - WHMIS IDL

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which fall under WHMIS criteria specified in the Controlled Products Regulations and present above the threshold limits listed on the IDL. The following components are listed on the IDL;

Component	CAS #	Minimum Concentration
Ammonium Chloride	12125-02-9	1 %
Zinc chloride	7646-85-7	1 %

WHMIS Classification

E

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AU	MITI	PH	KR	ELINCS	CN
Ammonium Chloride	12125-02-9	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Zinc chloride	7646-85-7	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Sodium chloride	7647-14-5	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Potassium chloride	7447-40-7	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

*** Section 16 - Other Information ***

Summary of Changes

New SDS: 12/19/2014 v.1.0; 02/19/2015 v.1.5 (hazards review); 05/04/2015 v2.0, updated 7/14/2015 v2.1, updated 9/9/2015 v2.2

Key / Legend

ACGIH = American Conference of Governmental Industrial Hygienists; **AU** = Australia; **BOD** - Biochemical Oxygen Demand; **C** - Celsius; **CA** - Canada; **CAS** = Chemical Abstracts Service; **CERCLA** = Comprehensive Environmental Response, Compensation, and Liability Act; **CFR** = Code of Federal Regulations; **CN** = China; **CPR** = Controlled Products Regulations; **DOT** = Department of Transportation; **DSL** = Domestic Substances List; **EINECS** = European Inventory of Existing Commercial Chemical Substances; **ELINCS** = European List of Notified Chemical Substances; **EmS** = Emergency Response Procedures for Ships Carrying Dangerous Goods; **EPA** = Environmental Protection Agency; **EU** = European Union; **F** - Fahrenheit; **HEPA** = High Efficiency Particulate Air; **HMIS** = Hazardous Material Information System; **HPV** – High Production Volume Chemical (EU); **IARC** = International Agency for Research on Cancer; **IATA** = International Air Transport Association; **ICL** – In Commerce List (Canada); **IDL** - Ingredient Disclosure List; **IDLH** - Immediately Dangerous to Life and Health; **JP** = Japan; **KR** = Korea; **LEL** - Lower Explosive Limit; **MITI** = Japan Ministry of International Trade and Industry; **mg/Kg** = milligrams per Kilogram; **mg/L** = milligrams per Liter; **mg/m³** = milligrams per Cubic Meter; **MSHA** = Mine Safety and Health Administration; **NA** = Not Applicable or Not Available; **NFPA** = National Fire Protection Association; **NIOSH** = National Institute for Occupational Safety and Health; **NJTSSR** = New Jersey Trade Secret Registry; **NDSL** = Non-Domestic Substances Inventory; **NTP** = National Toxicology Program; **NZ** = New Zealand; **OSHA** = Occupational Safety and Health Administration; **PH** = Philippines; **RCRA** = Resource Conservation &

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Recovery Act; **RQ** = Reportable Quantity; **SARA** = Superfund Amendments and Reauthorization Act; **STEL** = Short Term Exposure Limit; **TDG** = Transport Dangerous Goods; **TSCA** = Toxic Substances Control Act; **TWA** - Time Weighted Average; **UEL** - Upper Explosive Limit; **US** - United States; **WHMIS** = Workplace Hazardous Materials Information System.

Other Information

Disclaimer: Supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product.

End of Sheet MRD-217