

Material Safety Data Sheet

FOR INDUSTRIAL USE ONLY

ECOFLUX 152 MNL

1. Product and company identification

Product name	ECOFLUX 152 MNL
MSDS Number	300000016120
Product Type	Cleaning and Degassing
Product use	Drossing Flux
Manufacturer, Importer, Supplier	HA International, LLC 630 Oakmont Lane Westmont, IL 60559
Print date	11-SEP-2010
Telephone	For Emergency Medical Assistance Call Health & Safety Information Services, 1-866-303-6949 For Emergency Transportation Information CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887 CANUTEC CA Domestic (613) 996-6666 For additional health and safety or regulatory information, call (630)575-5722, or (630)575-5705.

2. Hazards identification

Form	Crystalline solid.
Odor	none.
OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	WARNING ! DAMP MATERIAL MAY PRESENT AN EXPLOSION HAZARD WHEN ADDED TO MOLTEN METAL. NEVER ADD DAMP MATERIAL TO MOLTEN METAL. HARMFUL IN CONTACT WITH SKIN OR IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Potential acute health effects

Inhalation	Irritating to respiratory system.
Ingestion	Harmful if swallowed. Can cause methemoglobin formation.
Skin	Harmful in contact with skin. Irritating to skin.
Eyes	Irritating to eyes.

Potential chronic health effects

Chronic effects	Contains material that can cause target organ damage.
Carcinogenicity	Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	Contains material which may cause birth defects, based on animal data.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Target organs	Contains material which causes damage to the following organs: upper respiratory tract, Review Section 2 and 11 for any additional assessments.

Over-exposure signs/symptoms

Inhalation	Adverse symptoms may include the following: respiratory tract irritation, coughing,
Ingestion	Adverse symptoms may include the following: nausea or vomiting, dizziness/vertigo, dyspnea (labored breathing), drowsiness/fatigue, headache, irritability, fainting, stupor, coma anemia, cyanosis,
Skin	Adverse symptoms may include the following: irritation, redness,
Eyes	Adverse symptoms may include the following: pain or irritation, watering, redness,
Medical conditions aggravated by over-exposure	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See section 11 for more detailed information on health effects and symptoms.

3. Composition/Information on ingredients

<u>Ingredient name</u>	<u>CAS number</u>	<u>WT %</u>
Potassium Chloride	7447-40-7	30.0 - 50.0
Sodium Sulfate (Na ₂ SO ₄)	7757-82-6	10.0 - 30.0
Sodium Carbonate (Na ₂ CO ₃)	497-19-8	10.0 - 30.0
Sodium Nitrate	7631-99-4	1.0 - 5.0

*** Any applicable Canadian trade secret numbers will be listed in Section 15.*

4. First aid measures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation	Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial

respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Protection of first aid personnel	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
Notes to physician	Individuals reporting respiratory irritation following use should be assessed for potential minor exposure to chlorine and treated accordingly. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Flammability of the product	This product is not flammable per OSHA definitions.
<u>Extinguishing media</u>	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Hazardous combustion products	Decomposition products may include the following materials: halogenated compounds, metal oxide/oxides, carbon monoxide, carbon dioxide, hydrochloric acid vapor, chlorine gas, irritating and toxic fumes and gasses
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or

air).

Large spill

Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Do not reuse spilled material. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Small spill

Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Do not reuse spilled material.

7. Handling and storage

Handling

Material should be free-flowing. Do not use damp or clumpy material. Addition of damp or clumpy material to molten metal may present an explosion hazard.

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Product may absorb moisture from the air. Immediately dispose of any material that is damp or clumpy. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient name

Sodium Sulfate (Na₂SO₄)

Occupational exposure limits

ACGIH TLV 8-hr TWA

10 mg/m³

(inhalable, Particles (Insoluble or Poorly Soluble) Not Otherwise Specified)

OSHA PEL 8-hr TWA

5 mg/m³

(respirable particulate)

OSHA PEL 8-hr TWA

15 mg/m³

(total dust)

Chlorine

ACGIH TLV 8-hr TWA

1.5 mg/m³ 0.5 ppm

ACGIH TLV STEL (15 min)

2.9 mg/m³ 1 ppm

OSHA PEL Ceiling

3 mg/m³ 1 ppm

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Engineering measures	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Respiratory	Follow all facility requirements when working near molten metal. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. When this material is added to molten metal in normal use, the following hazardous vapors may be generated: chlorine gas, hydrochloric acid vapor,
Hands	Follow all facility requirements when working near molten metal. Neoprene, nitrile, or natural rubber gloves are appropriate when handling material away from metal pouring or mixing area.
Eyes	Follow all facility requirements when working near molten metal. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Skin	Follow all facility requirements when working near molten metal. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Form	Crystalline solid.
Color	White
Odor	none.
Solubility	Soluble
Density	2.2 g/cm ³ Approx.

10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Product may absorb moisture from the air. Damp material may present an explosion hazard when added to molten metal.
Materials to avoid	Reactive or incompatible with the following materials: strong acids, alkalis, iron,
Hazardous decomposition products	Decomposition products may include the following materials: carbon dioxide, carbon oxides, chlorine gas, hydrochloric acid vapor, and other toxic or irritating vapors and gases.

11. Toxicological information

Acute toxicity

Ingredient name

Potassium Chloride	LD50 Oral	Rat	2,600 mg/kg
Sodium Sulfate (Na ₂ SO ₄)	LD50 Oral	Mouse	5,989 mg/kg
Sodium Carbonate (Na ₂ CO ₃)	LD50 Oral	Rat	4,090 mg/kg
	LD50 Oral	Mouse	6,600 mg/kg
	LC50 Inhalation	Rat	2.3 mg/l/2 h
	LC50 Inhalation	Mouse	1.2 mg/l/2 h
	LC50 Inhalation	Guinea pig	0.8 mg/l/2 h
Sodium Nitrate	LD50 Oral	Rat	1,267 mg/kg
	LD50 Oral	Rabbit	2,680 mg/kg
	LD50 Oral	Mouse	3,500 mg/kg

Other Toxicological Information

Carcinogenicity

Classification

Ingredient name

Potassium Chloride	ACGIH	Not classified
	IARC	Not classified
	NTP	Not listed
	OSHA	Not regulated
	EU	Not classified
Sodium Sulfate (Na ₂ SO ₄)	ACGIH	Not classified
	IARC	Not classified
	NTP	Not listed
	OSHA	Not regulated
	EU	Not classified

Sodium Carbonate (Na₂CO₃)

ACGIH	Not classified
IARC	Not classified
NTP	Not listed
OSHA	Not regulated
EU	Not classified

Sodium Nitrate

ACGIH	Not classified
IARC	The agent (mixture) is probably carcinogenic to humans. (Group 2A)
NTP	Not listed
OSHA	Not regulated
EU	Not classified

12. Ecological information

Environmental effects

No known significant effects or critical hazards.

Aquatic ecotoxicity

Ingredient name

Potassium Chloride

Fresh water	Acute LC50 951 mg/l/96 h	Bluegill
Fresh water	Acute LC50 880 mg/l/96 h	Fathead minnow

Sodium Sulfate (Na₂SO₄)

Fresh water	Acute LC50 3,040 mg/l/96 h	Bluegill
Fresh water	Acute LC50 7,960 mg/l/96 h	Fathead minnow

Sodium Carbonate (Na₂CO₃)

Fresh water	Acute LC50 < 850 mg/l/96 h	Fathead minnow
-------------	----------------------------	----------------

Sodium Nitrate

Fresh water	Acute LC50 2,000 mg/l/96 h	Bluegill
Fresh water	Acute LC50 1,355 mg/l/96 h	Rainbow trout,donaldson trout
Salt water	Acute LC50 1,050 mg/l/96 h	Rainbow trout,donaldson trout

Other adverse effects

No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR	1498	SODIUM NITRATE MIXTURE	Class 5.1 III	

TDG	1498	SODIUM NITRATE MIXTURE	Class 5.1 III
IMO/IMDG	1498	SODIUM NITRATE MIXTURE	Class 5.1 III
IATA (Cargo)	1498	SODIUM NITRATE MIXTURE	Class 5.1 III

*PG : Packing group

15. Regulatory information

US regulations

HCS Classification Irritating material, Carcinogen, Target organ effects

U.S. Federal regulations

SARA 311/312 Classification Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA 313 - Supplier Notification

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Sodium Nitrate - 7631-99-4 (2.50%),

SARA 302 Extremely Hazardous Substances None required.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants None required.

State regulations

Massachusetts RTK Substances The following components are listed: Sodium Chloride, Sodium Sulfate (Na₂SO₄), Sodium Nitrate,

New Jersey RTK Hazardous Substances The following components are listed: Sodium Nitrate,

Pennsylvania RTK Hazardous Substances The following components are listed: Sodium Nitrate, Sodium Sulfate (Na₂SO₄), Sodium Chloride,

California Prop. 65: None required.

Canada

WHMIS (Canada)

Class D-1B: Material causing immediate and serious toxic effects (Toxic).

Class D-2A: Material causing other toxic effects (Very toxic).

Class D-2B: Material causing other toxic effects (Toxic).

Class E: Corrosive material

Canadian lists

Canadian NPRI: The following components are listed: Sodium Nitrate,

International regulations

Chemical inventories

Australia inventory (AICS) All components are listed or exempted.

Canada inventory All components are listed or exempted.

Europe inventory All components are listed or exempted.

Japan inventory All components are listed or exempted.

China inventory (IECSC) All components are listed or exempted.

Korea inventory All components are listed or exempted.

New Zealand Inventory (NZIoC) Not determined.

Philippines inventory (PICCS) All components are listed or exempted.

United States inventory (TSCA 8b) All components are listed or exempted.

16. Other information

Hazardous Material Information System III (U.S.A.)	Health : 2 Flammability: 0 Physical hazards : 0 Chronic : *
---	--

Caution: HMIS[®] ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS[®] ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS[®] ratings are to be used with a fully implemented HMIS[®] program. HMIS[®] is a registered mark of the National Paint & Coatings Association (NPCA). HMIS[®] materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Prepared by	Product Safety & Compliance Group, (630)575-5722, or (630)575-5705
Date of issue	10-SEP-2010
Date of printing	11-SEP-2010
Version	2.2

Notice to reader

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE, except that the product shall conform to contracted specifications, and that the product does not infringe any valid United States or Canadian patent. No claim of any kind shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.