

Material Safety Data Sheet

FOR INDUSTRIAL USE ONLY

WF11 MNL

1. Product and company identification

Product name	WF11 MNL
MSDS Number	300000016136
Product Type	Manual Flux
Product use	Drossing Flux
Manufacturer, Importer, Supplier	HA International, LLC 630 Oakmont Lane Westmont, IL 60559
Print date	19-AUG-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. TOXIC IF SWALLOWED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Potential acute health effects

Inhalation	Can cause central nervous system (CNS) depression. Irritating to respiratory system.
Ingestion	Toxic if swallowed. Can cause central nervous system (CNS) depression.
Skin	Irritating to skin.
Eyes	Irritating to eyes.

Potential chronic health effects

Chronic effects	Contains material that can cause target organ damage. Can cause abnormal hardening of bone.
Carcinogenicity	No known significant effects or critical hazards.
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, bones Review Section 2 and 11 for any additional assessments.

Over-exposure signs/symptoms

Inhalation	Adverse symptoms may include the following: nausea or vomiting, respiratory tract irritation, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness,
Ingestion	Adverse symptoms may include the following: nausea or vomiting, dizziness/vertigo, drowsiness/fatigue, headache, unconsciousness,
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 Hexafluorosilicate	16893-85-9	10.0 - 30.0
Sodium Sulfate (Na ₂ SO ₄)	7757-82-6	10.0 - 30.0
Sodium Carbonate (Na ₂ CO ₃)	497-19-8	5.0 - 10.0

*** 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. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
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. 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. If it is suspected that dust, vapor, mist or gas are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
Notes to physician	Individuals reporting respiratory irritation following use should be assessed for potential minor exposure to HF and/or 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, chlorine gas, hydrogen chloride, fluorine compounds (HF and fluorine), 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). Do
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not breathe dust, vapor, mist or gas.

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 and 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. Do not breathe dust, vapor, mist or gas.

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 Hexafluorosilicate

Occupational exposure limits

ACGIH TLV 8-hr TWA
2.5 mg/m³

OSHA PEL 8-hr TWA
2.5 mg/m³

OSHA PEL Z2 8-hr TWA
2.5 mg/m³
(dust)

Sodium Sulfate (Na₂SO₄)

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

Hydrofluoric Acid

ACGIH TLV 8-hr TWA

0.5 ppm

ACGIH TLV Ceiling

2 ppm

OSHA PEL 8-hr TWA

2.5 mg/m³

OSHA PEL Z2 8-hr TWA

3 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. 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, HF and fluorine gas

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	2.7 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 oxidizing agents, alkalis, iron,
Hazardous decomposition products	Decomposition products may include the following materials: carbon monoxide, carbon dioxide, chlorine gas, hydrochloric acid vapor, fluorine compounds (HF and fluorine), and other toxic or irritating vapors and gases.

11. Toxicological information

Acute toxicity
Ingredient name
Potassium Chloride

Sodium Hexafluorosilicate	LD50 Oral	Rat	2,600 mg/kg
Sodium Sulfate (Na ₂ SO ₄)	LD50 Oral	Rat	125 mg/kg
Sodium Carbonate (Na ₂ CO ₃)	LD50 Oral	Mouse	5,989 mg/kg
	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

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 Hexafluorosilicate

ACGIH	Not classifiable as to its carcinogenicity to humans.
IARC	IARC Group 3, not classifiable as to carcinogenicity to humans
NTP	Not listed
OSHA	Not regulated
EU	Not classified

Sodium Sulfate (Na₂SO₄)

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

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 Hexafluorosilicate

Fresh water	Acute LC50 49 mg/l/4 d	Bluegill
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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
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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		Non-regulated		
TDG		Non-regulated		
IMO/IMDG		Non-regulated		
IATA (Cargo)		Non-regulated		

*PG : Packing group

15. Regulatory information

US regulations

HCS Classification Toxic material, Irritating material, 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.
None required.

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 Sulfate (Na₂SO₄), Sodium Hexafluorosilicate, Sodium Chloride,

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

Pennsylvania RTK Hazardous Substances The following components are listed:

Sodium Chloride, Sodium Sulfate (Na₂SO₄),

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: None required.

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
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