1 PRODUCT AND COMPANY IDENTIFICATION

Pre-Harvest Division
Cerexagri-Nisso LLC
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406

EMERGENCY PHONE NUMBERS:
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 767-5089 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
R&D Technical Service	610-878-6100	8:00am to 5:00pm EST
Customer Service	1-800-438-6071	8:00am - 5:00 pm EST

Product Name	KRYOCIDE (R) Insecticide
Product Synonym(s)	
Chemical Family	Inorganic Fluoride
Chemical Formula	Na3(AlF6)
Chemical Name	Trisodium hexafluoroaluminate
EPA Reg Num	4581-116-82695
Product Use	Controls insects on crops

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
Sodium fluoroaluminate	15096-52-3	>94	Y

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

The components of this product are all on the TSCA Inventory list.

3 HAZARDS IDENTIFICATION

Emergency Overview
Odorless white to off-white or tan crystalline powder.
CAUTION!
KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
CAUSES KIDNEY AND BONE DAMAGE
CAUSES EYE IRRITATION.

Avoid contact with eyes, skin and clothing.
Avoid breathing mist. Avoid breathing spray mist or dust.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be practically non-toxic if swallowed, no more than slightly toxic if absorbed through skin, slightly toxic if inhaled, non-irritating to skin and moderately irritating to eyes. Severe or repeated exposure may cause kidney damage and bone effects including joint pain, tooth erosion and discoloration. Medical conditions that may be aggravated by exposure to this material include kidney disease.

4 FIRST AID MEASURES

IF IN EYES,
-Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
-Call a poison control center or doctor for treatment advice.

IF ON SKIN, immediately wash with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

IF SWALLOWED,
-Call a poison control center or doctor immediately for treatment advice.
-Have person sip a glass of water if able to swallow.
-Do not induce vomiting unless told to do so by a poison control center or doctor.
-Do not give anything by mouth to an unconscious person.

IF INHALED,
-Move person to fresh air.
-If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
-Call a poison control center or doctor for further treatment advice.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	N/A	
Flash Point	N/A	Flash Point Method
Flammable Limits- Upper	N/A	
Lower	N/A	

Extinguishing Media

Use water spray, carbon dioxide, foam or dry chemical.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

None known.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Contain spill. Sweep or scoop up and remove to suitable container. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE

7 HANDLING AND STORAGE

Handling

Do not breathe dust.
Wash thoroughly after handling. Do not get in eyes, on skin or on clothing. Keep container closed.
Empty container may contain hazardous residues.
KEEP OUT OF REACH OF CHILDREN.

Storage

This material is not hazardous under normal storage conditions; however, material should be stored in closed containers, in a secure area to prevent container damage and subsequent spillage. Store in a cool, dry place. Do not store in a manner where cross-contamination with pesticides, fertilizers, food or feed could occur.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposures. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Eye / Face Protection

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

Skin Protection

Minimize skin contamination by following good industrial hygiene practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection

Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

Exposure Limit		Value
Sodium fluoroaluminate		
ACGIH TWA	-Soluble aluminum salt, as Al	2 mg/m3
ACGIH TWA	-Fluoride, as F	2.5 mg/m3
OSHA TWA PEL	-as Al total dust respirable	5 mg/m3
OSHA TWA PEL	-as Al total dust	15 mg/m3
OSHA TWA PEL	-Fluoride, as F	2.5 mg/m3

-Only those components with exposure limits are printed in this section.
-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.
-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.
-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Odorless white to off-white or tan crystalline powder.
pH	Neutral
Specific Gravity	0.790 g/ml
Vapor Pressure	N/A
Vapor Density	N/A
Melting Point	>960 C
Freezing Point	N/A
Boiling Point	N/A
Solubility In Water	0.42 g/L
Evaporation Rate	N/A
Percent Volatile	N/A

10 STABILITY AND REACTIVITY

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Hazardous Polymerization

Does not occur.

Incompatibility

N/A

Hazardous Decomposition Products

N/A

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Data on this material and/or its components are summarized below. Fluorides
The estimated lethal dose by ingestion in humans is 50 mg/kg (as F). Long-term overexposure to fluorides results from excessive deposition in bone which is the primary target organ. Dental fluorosis typically results in staining and pitting of teeth in humans with fluoride concentrations in the drinking water greater than 2 ppm. At higher fluoride levels in the drinking water (greater than 10 ppm), skeletal fluorosis and osteosclerosis have been observed. Epidemiology studies of human populations exposed to fluoride in the drinking water have not shown any evidence for an increase in cancer or birth defects. Repeated oral dose exposures to rats and mice have resulted in skeletal and dental fluorosis, kidney damage, and liver damage in rats. Chronic (2-year) studies conducted by the National Toxicology Program (NTP) with sodium fluoride administered in the drinking water of rats and mice were considered to present equivocal evidence of carcinogenic activity in male rats based on an increased incidence of osteosarcoma as compared to historical controls. No evidence for carcinogenicity in female rats and mice was found. Adverse developmental effects were not evident in animal studies. The reproductive effects of fluoride are equivocal: Infertility was noted in female mice from an oral reproduction study but only at a dose level associated with excessive systemic toxicity. A reduction in fertility has been reported in male rats in one study but no efftects on fertility were observed over three generations in mice fed sodium fluoride in the diet. In several studies with both rats and mice, no adverse effects were noted on sperm morphology or DNA damage. Sodium fluoride has generally produced no genetic changes in standard tests using bacterial cells. Both positive and negative responses have been reported in assays using animals and animal cells. Fluoride is readily absorbed in the lungs from inhalation and in the gastrointestinal tract. Both uptake in bone and urinary excretion are rapid processes. Daily retention in bone of increased

11 TOXICOLOGICAL INFORMATION

amounts of fluoride intake is estimated to be 50%. If intake is reduced, a two-phase resorption of fluoride from bone occurs with a rapid process on the order of weeks and a slower phase with a half-life of 8 years.

Sodium fluoroaluminate
Single exposure (acute) studies indicate that this material is practically non-toxic if swallowed (rat LD50 >5,000 mg/kg), no more than slightly toxic if absorbed through skin (rabbit LD50 >2,100 mg/kg), slightly toxic if inhaled (rat 4-hr LC50 between 2 and 5 mg/l), non-irritating to rabbit skin and moderately irritating to rabbit eyes.
No skin allergy was observed in guinea pigs following repeated exposure. Repeated dietary exposure in rats produced accumulation of fluoride in the bones and effects on the teeth, stomach and kidneys. Repeated application to the skin of rabbits produced reduced weight gain. A long-term feeding study in dogs produced effects on blood parameters, bone marrow and the kidneys. No birth defects were observed in the offspring of rats exposed orally during pregnancy. Birth defects were observed in the offspring of mice exposed orally during pregnancy at doses that produced adverse effects in the mothers. No genetic changes were observed in tests using bacteria. Both positive and negative results were seen in tests using animals.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

Data on this material and/or its components are summarized below.
Fluorides
Generally, fluoride is no more than slightly toxic to freshwater and marine fish and freshwater and marine invertebrates (acute LC50 values >100 mg/l). Trout fry appeared to be the most sensitive species with an LC50 range of 6-15 mg/l when exposed for 10 days. There are no reports of adverse effects in wild birds, and domestic fowl can tolerate levels up to 300 mg/kg without adverse effects. Honeybees were affected in areas with fluoride emission sources, and slight damage may result to plants with excessive levels of fluoride in the air and soil.
This material is moderately to slightly toxic to Daphnia pulex (48-hr EC50 7.6-13.0 mg/l), slightly toxic to rainbow trout (96-hr LC50 47.0 mg/l), and practically non-toxic to bluegill (96-hr LC50 >400 mg/l) and zebrafish (EC0 1,000 mg/l). The oral LD50 for bobwhite quail is >2,150 mg/kg.

Chemical Fate Information

Data on this material and/or its components are summarized below.
Fluorides
Naturally occurring levels of fluoride are commonly found in the range of 0.01-0.3 mg/l in surface water and up to 25 mg/l in ground water. Average soil concentrations for fluoride are generally in the range of 200-400 mg/kg. Therefore, releases of this material to ambient air are not expected to result in notable increases to existing background levels of environmental fluoride.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Recover, reclaim or recycle when practical. Dispose of in accordance with federal, state and local regulations.

14 TRANSPORT INFORMATION

DOT Name	Not Regulated by DOT
DOT Technical Name	
DOT Hazard Class	
UN Number	
DOT Packing Group	PG
RQ	

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	N
Delayed (Chronic) Health	Y	Reactive	N
		Sudden Release of Pressure	N

The components of this product are all on the TSCA Inventory list.

Ingredient Related Regulatory Information:

SARA Reportable Quantities	CERCLA RQ	SARA TPQ
Sodium fluoroaluminate	NE	NE

New Jersey Right to Know
This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.
Sodium fluoroaluminate

Pennsylvania Right to Know
This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.
Sodium fluoroaluminate

16 OTHER INFORMATION

Revision Information

Revision Date	06 JAN 2006	Revision Number 13
Supercedes Revision Dated	03-JAN-2006	

Revision Summary
Update section 1

Key
NE= Not Established NA= Not Applicable (R) = Registered Trademark

Miscellaneous
Stability - not photochemically reactive; stable at temperatures <0C to 54 C; does not react with metals within this temperature range.

Kyrocide(R) is a registered trademark of Cerexagri, Inc.

Cerexagri-Nisso LLC believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of Cerexagri-Nisso LLC,Cerexagri-Nisso LLC expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.