1 PRODUCT AND COMPANY IDENTIFICATION

Agrichemicals Group
Cerexagri, Inc.
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	Aqua-Kleen Aquatic Herbicide
Product Synonym(s)	
Chemical Family	2,4-Dichlorophenoxyacetic acid, butoxyethyl ester
Chemical Formula	NA
Chemical Name	Acetic acid, (2,4-dichlorophenoxy)-, 2-butoxyethyl ester
EPA Reg Num	228-378-4581
Product Use	Aquatic herbicide for controlling unwanted aquatic plants

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
2-Butoxyethyl 2,4-dichlorophenoxy acetate	1929-73-3	27.6	Y
Quartz	14808-60-7	<15	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)

3 HAZARDS IDENTIFICATION

Emergency Overview
Tan granules, solid, phenolic odor.
CAUTION!
KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
CAUSES EYE IRRITATION.
Avoid contact with eyes, skin and clothing. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Avoid breathing dust. Wash thoroughly after handling.
CANCER HAZARD. CONTAINS CRYSTALLINE SILICA WHICH CAN CAUSE CANCER.
Repeated and prolonged inhalation of respirable particles can cause lung cancer and delayed lung damage (silicosis).

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on its composition, it is anticipated to be slightly to moderately toxic if swallowed and slightly toxic if inhaled. Direct contact may be irritating to the eyes and skin. Inhalation may be irritating to the respiratory tract. Repeated and prolonged inhalation of crystalline silica may cause a form of disabling lung disease (commonly known as silicosis). Clinical signs and symptoms of silicosis include cough, shortness of breath, wheezing and impairment of lung function. Impairment of lung function may be progressive. In the usual case of silicosis, there is a slow deterioration of capacity for physical

effort, decreased chest expansion, and an increased susceptibility to tuberculosis and other respiratory infections. This material inhaled in the form of quartz is classified as "carcinogenic to humans" by the International Agency for Research on Cancer (IARC) and respirable forms of this material are listed as substances that "may reasonably be anticipated to be carcinogens" by the National Toxicology Program.

Short term, extremely heavy exposures to dust of this material (particularly small-sized particles) can result in acute silicosis. This disease is rapidly progressive with diffuse pulmonary involvement, which may develop within months of initial exposure. Individuals with acute silicosis may suffer an abrupt onset of violent coughing, labored breathing, and weight loss; death has been known to occur within one to two years.

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, Wash with plenty of soap and water. Get medical attention if irritation persists.

IN CASE OF CONTACT, flush the area with plenty of water. Remove material from clothing. Wash clothing 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	NA	
Flash Point	NA	Flash Point Method
Flammable Limits- Upper	NA	
Lower	NA	

Extinguishing Media

dry chemical, carbon dioxide, foam, water spray

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

Avoid breathing fumes from fire exposed material. Irritating or toxic vapors

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Contain spill. Sweep or scoop up and remove to suitable container. Flush with water. Prevent spilled product from entering sewers or natural water. 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

Handling

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Avoid breathing dust.

Storage

Store away from food and feed. Do not store in a manner where cross-contamination with pesticides, fertilizers, food or feed could occur. Store in a cool, dry place.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Eye / Face Protection

Use good industrial practice to avoid eye contact.

Skin Protection

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. gloves should be worn when handling this material. Rinse contaminated skin promptly. Wash contaminated clothing and clean protective equipment before reuse. Wash skin thoroughly after handling.

Respiratory Protection

Avoid breathing dust. When airborne exposure limits are exceeded (see below), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, 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
Quartz		
ACGIH TWA	Respirable particle	0.05 mg/m3
2-Butoxyethyl 2,4-dichlorophenoxy acetate		
ACGIH TWA	-For 2,4-D	10 mg/m3
OSHA TWA PEL	-For 2,4-D	10 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	Tan granules, solid, phenolic odor.
pH	NA
Specific Gravity	NA
Vapor Pressure	2.4 X 10-6 mm Hg(for ester)
Vapor Density	NA
Melting Point	NA
Freezing Point	NA
Boiling Point	156-162C@1 mmHg (ester)
Solubility In Water	Insoluble
Molecular Weight	321.2 (ester)

10 STABILITY AND REACTIVITY

Stability

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

Hazardous Polymerization

Does not occur.

Incompatibility

Strong oxiding agents: bases, acids.

Hazardous Decomposition Products

Upon thermal decomposition may produce hydrogen chloride, oxides of sulfur

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Data on this material and/or its components are summarized below.

Single exposure (acute) studies indicate:
Inhalation - Slightly Toxic to Rats (4-hr LC50 4.6 mg/l) 2-Butoxyethyl 2,4-dichlorophenoxy acetate
Birth defects have been observed in the offspring of rats exposed orally during pregnancy.

2,4-Dichlorophenoxyacetic acid
Single exposure (acute) studies indicate that this material is slightly to moderately toxic if swallowed (rat LD50 320-4,050 mg/kg), no more than slightly toxic if absorbed through skin (rabbit LD50 >2,000 mg/kg) and slightly irritating to rabbit eyes and skin. 2,4-Dichlorophenoxyacetic acid
Kidney effects were observed in rats and mice following repeated oral exposure. This material is classified as a Category D carcinogen (unclassifiable as to carcinogenicity) by the U.S. Environmental Protection Agency and chlorophenoxy herbicides are classified as "possibly carcinogenic to humans" (Group 2B) by the International Agency for Research on Cancer (IARC). The IARC listing is based on epidemiological studies suggesting and association between the development of certain types of cancer (soft-tissue sarcoma and non-Hodgkin's lymphoma) and exposure to chlorophenoxy herbicides. Two long-term oral studies in rats produced no evidence of tumors, although kidney effects were observed. No birth defects were observed in the offspring of rabbits exposed orally during pregnancy. Birth defects were observed in the offspring of rats exposed orally during pregnancy, but only at dosages which produced adverse effects on the mothers. Genetic changes were observed in tests using human cells, but not in tests using bacteria or animals. Both positive and negative

11 TOXICOLOGICAL INFORMATION

results were observed in tests using animal cells.

The acid data are considered to be more representative for the granular formulation because the ester is essentially insoluble in water, it releases gradually from the granules and it is hydrolyzed rapidly to the acid. Thus, exposure of aquatic organisms is predominantly to the acid.

Quartz
Chronic inhalation of crystalline silica may cause a progressive pneumoconiosis (silicosis), a form of disabling lung disease (pulmonary fibrosis). Data from animal studies on crystalline forms of silica confirm the capacity of free crystalline silica to induce a fibrinogenic response in lungs. Studies on a variety of laboratory animals (rats, guinea pigs, rabbits, and monkeys) using inhalation as well as intratracheal routes of exposure indicate the ability of crystalline silica to produce silicosis similar to that seen in man. In addition, experiments in animals have confirmed human experience that the presence of crystalline silica in the lung increased susceptibility to tuberculosis and other lung infections. Crystalline silica inhaled in the form of quartz is classified as "carcinogenic to humans" by the International Agency for Research on Cancer (IARC), and respirable forms of crystalline silica are listed as substances that "may reasonably be anticipated to be carcinogens" by the National Toxicology Program. The IARC listing is based on the determination that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz from occupational exposures. Epidemiology studies cited by IARC give indications of increased risk for lung cancer from inhaled crystalline silica (quartz) resulting from occupational exposure. Studies involving heavy industrial exposure to silica in granite and foundry workers, brick factories and sandblasting produced increased levels of protein and enzymes in urine, which is indicative of kidney damage.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

Data on this material and/or its components are summarized below.
2,4-Dichlorophenoxyacetic acid
This material is slightly toxic to Daphnia (48-hr EC50 36.4 mg/l). It is practically non-toxic to trout (96-hr LC50 358 mg/l) and bluegill (96-hr LC50 263 mg/l).

2-Butoxyethyl 2,4-dichlorophenoxy acetate
This material is moderately toxic to bleak (96-hr LC50 3.2-3.7 mg/l), Daphnia magna (48-hr EC50 7.2 mg/l) and coho salmon (96-hr LC50 1.5 mg/l). It is highly toxic to bluegill (96-hr LC50 0.61 mg/l), Chinook salmon (96-hr LC50 0.315 mg/l) and pink salmon (96-hr LC50 0.8 mg/l). It is moderately to highly toxic to rainbow trout (96-hr LC50 0.518-2.0 mg/l) and fathead minnow (96-hr LC50 0.95-2.5 mg/l). The oral LC50 for bobwhite quail, Japanese quail, ring-necked pheasant and mallard duck is >5,000 ppm.
Aqua-Kleen
The acid data are considered to be more representative for the granular formulation because the ester is essentially insoluble in water, it releases gradually from the granules and it is hydrolyzed rapidly to the acid. Thus, exposure of aquatic organisms is predominantly to the acid.

Chemical Fate Information

Data on this material and/or its components are summarized below.
Aqua-Kleen
In water, hydrolysis of the ester to the acid occurred with hours of release from granules (nondetectable later than 1 day after application). The typical half-life of the resultant acid ranged from a few days to a few weeks.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Dispose of solid waste at properly permitted landfills observing all local, state and federal regulations. Contaminated liquids should be concentrated and incinerated at a properly permitted disposal site again observing all local, state and federal regulations.

14 TRANSPORT INFORMATION

DOT Name	NOT REGULATED
DOT Technical Name	Not regulated
DOT Hazard Class	NA
UN Number	NA
DOT Packing Group	PG NA
RQ	NA

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

Ingredient Related Regulatory Information:

SARA Reportable Quantities	CERCLA RQ	SARA TPQ
Quartz	NE	
2-Butoxyethyl 2,4-dichlorophenoxy acetate	100 LBS	NE

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. See Section 2

2-Butoxyethyl 2,4-dichlorophenoxy acetate

SARA Title III, Section 302

This product does contain chemical(s), as indicated below, currently on the Extremly Hazardous Substance List, Section 302, SARA Title III. See Section 2 for further details regarding concentrations and registry numbers.

2-Butoxyethyl 2,4-dichlorophenoxy acetate

California Prop 65 - Carcinogen

This product does contain the following chemical(s), as indicated below, currently on the California list of Known Carcinogens.

Quartz

Massachusetts Right to Know

This product does contain the following chemicals(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

2-Butoxyethyl 2,4-dichlorophenoxy acetate
Quartz

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.
2-Butoxyethyl 2,4-dichlorophenoxy acetate
Quartz

Pennsylvania Environmental Hazard
This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.
2-Butoxyethyl 2,4-dichlorophenoxy acetate

Pennsylvania Right to Know
This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.
2-Butoxyethyl 2,4-dichlorophenoxy acetate
Quartz

16 OTHER INFORMATION

Revision Information

Revision Date	09 JUL 2003	Revision Number 8
Supercedes Revision Dated	02-DEC-2002	

Revision Summary
Updated to remove restriction relating to California

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

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