MATERIAL SAFETY DATA SHEET

Syngenta Crop Protection Canada, Inc.
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Guelph, ON N1G 4Z3

In Case of Emergency, Call
1-800-327-8633 (FAST MED)

Date of MSDS Preparation (Y/M/D): 2008/12/31

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MSDS prepared by:
Department of Regulatory & Biology Development
Syngenta Crop Protection Canada, Inc.

For further information contact:
1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: **AATREX® 480 Liquid Herbicide** Formulation No.: A8566A
Registration Number: 18450 (Pest Control Products Act)
Chemical Class: Triazine Herbicide
Synonym: Atrazine

Active Ingredient (%): Atrazine (42.6%) CAS NO.: 1912-24-9
Chemical Name : 2-chloro-4-ethylamino-6-isopropylamino-s-triazine.
Product Use: Liquid herbicide for agricultural weed control. Please refer to product label for further details.

SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Ethylene Glycol (≤ 6%) (CAS # 107-21-1)	Not Established	100 mg/m³ (ceiling) [aerosol]	Not Established	No	Yes
Atrazine (42.6%)	Not Established	5 mg/m³ TWA	5 mg/m^3 TWA **	IARC Group 3	Not Established

** recommended by NIOSH
† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure
Can cause mild eye irritation.

Hazardous Decomposition Products
Can decompose at high temperatures forming toxic gases.

Physical Properties
Appearance: White liquid.
Odour: Odourless.

Unusual Fire, Explosion and Reactivity Hazards
During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Potential Health Effects
Relevant routes of exposure: Skin, eyes, mouth, lungs.

SECTION – 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633** (**1-800-FASTMED**)], for further information.

EYE CONTACT: Flush eyes with clean water, holding eyelids apart for a minimum of 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

SKIN CONTACT: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

INHALATION: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

Atrazine is an s-triazine herbicide. There is no specific antidote. If a large amount has been swallowed and emesis has been inadequate, lavage stomach. A suspension of thirty to fifty grams of activated charcoal can be given for smaller amounts or to absorb the remaining toxicant. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED: None known.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: > 100 ºC (Pensky-Martens CC)
Upper and lower flammable (explosive) limits in air: Not applicable.
Auto-ignition temperature: > 650 ºC
Flammability: Not flammable.
Hazardous combustion products: Thermal decomposition products may include carbon monoxide, hydrogen cyanide and acetonitrile.
Conditions under which flammability could occur: Temperatures above the flash point. Keep fire exposed containers cool by spraying with water.
Extinguishing media: All are compatible. Use water fog or mist, (avoid excess water), foam, carbon dioxide, dry powder or halon extinguishant. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.
Sensitivity to explosion by mechanical impact: Not sensitive.
Sensitivity to explosion by static discharge: Not sensitive.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective equipment and clothing as described in Section 8 and/or the product label.

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Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent material from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or sweep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN and animals. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. After work, rinse gloves and remove protective equipment. Wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Keep product, wash or rinse water, and contaminated materials out of water, and away from access by animals and birds or unauthorized people.

Appropriate storage practices/requirements: Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

National Fire Code classification: Not required.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls: Ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS.

Personal protective equipment for each exposure route:

General: Avoid breathing vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, or using tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: To avoid eye contact, wear chemical goggles or a full-face shield.

SKIN: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

INHALATION: A respirator is not normally required when handling this substance. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White liquid.

Formulation Type: Liquid suspension.

Odour: Odourless.
pH: 5.04 @ 25 ^{o}C.
Vapour pressure and reference temperature: 1.5 mmHg @ 20^{o}C. [2.9 x 10^{-7} mmHg @ 20 ^{o}C (Atrazine technical)]
Vapour density: Not available.
Boiling point: 103 $\pm$ 3 ^{o}C.
Melting point: Not applicable.
Freezing point: -5 ^{o}C.
Specific gravity or density: 1.090 – 1.120 @ 20 ^{o}C
Evaporation Rate: Not available.
Water/oil partition coefficient: log P 2.34 (Atrazine).
Odour threshold: Not applicable.
Viscosity: 300 - 600 cps @ RT
Solubility in Water: 33 mg/L @ 20^{o}C (Atrazine technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable at room temperature.
Conditions to avoid: None known.
Incompatibility with other materials: None known.
Hazardous decomposition products: Thermal decomposition products may include carbon monoxide, hydrogen cyanide and acetonitrile.
Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	Practically Non-Toxic	
	Oral (LD50 Rat):	> 5000 mg/kg body weight
Dermal:	Practically Non-Toxic	
	Dermal (LD50 Rat):	> 5,050 mg/kg body weight
Inhalation:	Practically Non-Toxic	
	Inhalation (LC50 Rat):	> 2.72 mg/L air - 4 hours
Eye Contact:	Minimally Irritating (Rabbit)	
Skin Contact:	Non-Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Reproductive/Developmental Effects
Atrazine: None Observed.

Chronic/Subchronic Toxicity Studies
Atrazine: Cardiotoxicity in long term study with high doses (dogs).

Carcinogenicity
Atrazine: Mammary tumours (female Sprague-Dawley rats), sex and strain specific.
None observed (male Sprague-Dawley rats, F-344 rats or mice).
Atrazine is listed by IARC as a Group 3 carcinogen.

Other Toxicity Information:
None.

Toxicity of Other Components
The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute

hazards related to the "other components" in the formulation.

Ethylene Glycol (≤ 6%):

Ethylene glycol is known to cause dose related teratogenic effects in rats and mice but there is no information suggesting that ethylene glycol has caused birth defects in humans.

Other materials that show synergistic toxic effects together with the product: None known.

Target Organs

Active Ingredient

Atrazine:	Heart.

Inert Ingredients

Ethylene Glycol:	Not applicable.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

Atrazine:

Aatrex 480 is used to kill weeds in corn crops and most of the material applied remains in the treated area. However, if sufficient exposure occurs, it may be harmful to certain plant species, including algae. Slightly toxic to fish and invertebrates. Practically non-toxic to birds, mammals and bees.

Eco-Acute Toxicity

Atrazine:

Green Algae 5-day EC_{50}	49 ppb
Bee 48-hour LD_{50}	> 97 ug/bee
Bees LC_{50}/EC_{50}	> 100 µg/bee
Invertebrates (Water Flea) LC_{50}/EC_{50}	> 31 ppm
Invertebrate (Water Flea) 48-hour EC_{50}	6.9 ppm
Fish (Rainbow Trout) 96-hour LC_{50}	4.5 ppm
Fish (Bluegill Sunfish) 96-hour LC_{50}	6.7 ppm
Bird (Mallard Duck) LD_{50} Oral	> 2000 mg/kg
Birds (8-day dietary - Bobwhite Quail) LC_{50}/EC_{50}	> 5000 ppm
Birds (8-day dietary - Mallard Duck) LC_{50}/EC_{50}	> 5000 ppm

Eco-Chronic Toxicity

Atrazine:

Fish (Fathead minnow) Early Life Stage MATC	>0.25 and <0.46 mg A.I./L
Fish (Fathead Minnow) 60-day LOEC	0.87 ppm
Mallard Reproduction NOEC	225 ppm a.i.
Bobwhite Reproduction NOEC	225 ppm a.i.
Bird (Mallard Duck) Reproduction 23-week LOEL	675 ppm
Invertebrate (*Ceriodaphnia dubia*) Life Cycle NOEL	2.5 ppm
Invertebrate (Water Flea) 21-day LOEC	0.25 ppm

Environmental Fate

Atrazine:

The active ingredient, atrazine is biodegradable via microbial activity and other processes in soil and natural waters. It has a low bioaccumulation potential. Atrazine is moderately persistent in soil. Under typical conditions of use, the DT50 is between 18 and 70 days. Atrazine is moderately to highly mobile in soil.. Bulk material sinks in water (when evaluated after 24 h) but is gradually dispersed, forming a white suspension.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL
Not Regulated

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to meet WHMIS requirements, except for use of the 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 18450

SECTION – 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

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