applied biochemists®
a business of Arch Chemicals, Inc.

MATERIAL SAFETY DATA SHEET

FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL:	1-800-654-6911 (OUTSIDE USA: 1-423-780-2970)
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300 (OUTSIDE USA: 1-703-527-3887)
FOR ALL MSDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS (OUTSIDE USA: 1-423-780-2347)

PRODUCT NAME: **Navitrol Landscape and Aquatic Herbicide**

1. PRODUCT AND COMPANY IDENTIFICATION

Supplier
Applied Biochemists (WI)
W175 N11163 Stonewood Drive , Suite 234
Germantown, WI, 53022
United States

Telephone: +12622554449
Telefax: +12622554268
Web: www.appliedbiochemists.com

Manufacturer
Advantis Technologies
1400 Bluegrass Lakes Parkway
Alpharetta, GA 30004
United States of America

REVISION DATE:	10/23/2012
SUPERCEDES:	11/15/2011
MSDS Number:	000000012769
SYNONYMS:	
CHEMICAL FAMILY:	None
DESCRIPTION / USE	None established
FORMULA:	None established

2. HAZARDS IDENTIFICATION

OSHA Hazard Classification:	**Corrosive to eyes., Mild skin irritant, Possible skin sensitizer**

Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	No known or reported interactions.
Medical Conditions Aggravated:	Respiratory disorders, Skin disorders

Human Threshold Response Data

Odor Threshold	Not established for product.
Irritation Threshold	Not established for product.

Hazardous Materials Identification System / National Fire Protection Association Classifications

Hazard Ratings :	Health	Flammability	Physical / Instability	PPI / Special hazard.
HMIS	3	1	0	
NFPA	3	1	0	

Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to be toxic by inhalation. Not expected to be an inhalation hazard at ambient conditions. Inhalation of mist or vapor may cause irritation to the mucous membranes of the respiratory tract. Any irritation would be transient with no permanent damage expected.
Skin Toxicity:	Not expected to be toxic from dermal contact. Skin contact may cause mild reversible irritation consisting of transient redness. This irritant effect would not be expected to result in permanent damage.
Eye Toxicity:	Corrosive. Burns can occur following exposure. Direct contact may cause impairment of vision, corneal damage and/or blindness. Rinsing of the eye should take place immediately.
Ingestion Toxicity:	Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Acute Target Organ Toxicity:	Corrosive to eyes, May cause mild skin irritation. Ingestion may cause mild gastrointestinal discomfort., Inhalation of mist or vapor may cause irritation to the mucous membranes of the respiratory tract.

Prolonged (Chronic) Health Effects

Carcinogenicity:	This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA. This product contains a component that has been classified by the U.S. EPA as a "Group D" Carcinogen.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product. The active ingredient in this product has been tested in laboratory animals and no evidence of teratogenicity or fetotoxicity was seen.
Inhalation:	There are no known or reported effects from chronic exposure.
Skin Contact:	There are no known or reported effects from chronic exposure except for effects (if any) similar to those experienced from acute exposure.

Skin Absorption:	May cause kidney and liver damage based on animal data.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.
Eye Contact:	Prolonged contact may result in permanent damage.
Sensitization:	May cause allergic skin sensitization in some individuals.
Chronic Target Organ Toxicity:	There are no known or reported effects to humans from repeated exposure to this product.
Supplemental Health Hazard Information :	No additional health information available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

CAS OR CHEMICAL NAME	CAS #		% RANGE
triclopyr, triethylamine salt	57213-69-1	>=	
ETHANAMINE, N,N-DIETHYL-	121-44-8	>=	
EDTA	60-00-4	>=	<= 5
Citric Acid	77-92-9	>=	<= 5

4. FIRST AID MEASURES

General Advice:	Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency Action Network at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Inhalation:	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.
Skin Contact:	IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye Contact:	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.
Ingestion:	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.

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA):	Combustible
Flammable Properties	
Flash Point:	> 99 °C closed cup
Fire / Explosion Hazards:	Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Closed containers may explode (due to the build up of steam pressure) when exposed to extreme heat.
Extinguishing Media:	Alcohol-resistant foam Dry powder Carbon dioxide (CO2)
Fire Fighting Instructions:	In case of fire, use normal fire-fighting equipment and the personal protective equipment recommended in Section 8 to include a NIOSH approved self-contained breathing apparatus.
Hazardous Combustion Products:	During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations:	Use the personal protective equipment recommended in Section 8 and a NIOSH approved self-contained breathing apparatus.
Spill Mitigation Procedures	
Air Release:	Keep people away from and upwind of spill/leak.Vapors may be suppressed by the use of water fog.
Water Release:	This material is soluble in water.If the product contaminates rivers and lakes or drains inform respective authorities.
Land Release:	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).Do not contaminate ponds, waterways or ditches with chemical or used container.

Additional Spill Information :	Prevent further leakage or spillage if safe to do so. Evacuate personnel to safe areas. Even in case of a full release, due to the small amount of substances present, it is not expected that exposure limits will be reached. Remove all sources of ignition.

7. HANDLING AND STORAGE

Handling:	Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor.
Storage:	Store in a cool dry ventilated location, away from sources of ignition or other incompatible conditions and chemicals. Keep container(s) closed. Keep from freezing.
Incompatible Materials for Storage:	Refer to Section 10, "Incompatible Materials."

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation:	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep airborne exposures below the TLV, PEL or other recommended exposure limit.

Protective Equipment for Routine Use of Product

Respiratory Protection :	Wear a NIOSH approved respirator if levels above the exposure limits are possible., A NIOSH approved full-face or half-face respirator in combination with chemical goggles., A NIOSH approved full-face air purifying respirator with organic vapor cartridge. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.
Skin Protection :	Avoid contact with skin. Impervious gloves When exposure to high concentrations are prolonged or repeated use protective boots and apron in addition to gloves.
Eye Protection:	Use chemical goggles.
Protective Clothing Type:	Impervious
General Protective Measures:	Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Limit Data

CHEMICAL NAME	CAS #	Name of Limit	Exposure

ETHANAMINE, N,N-DIETHYL-	121-44-8	ACGIH	1 ppm TWA
ETHANAMINE, N,N-DIETHYL-	121-44-8	ACGIH	3 ppm STEL
ETHANAMINE, N,N-DIETHYL-	121-44-8	OSHA Z1	25 ppm TWA 100 mg/m3 TWA
ETHANAMINE, N,N-DIETHYL-	121-44-8	NIOSH-IDLH	200 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	liquid
Form	No data.
Color:	No data.
Odor:	No data.
Molecular Weight:	None established
Specific Gravity :	1.16 20 °C
pH :	8.5 - 9.0
Boiling Point:	not applicable
Freezing Point:	no data available
Melting Point:	no data available
Density:	not applicable
Bulk Density:	1,160 kg/m3
Vapor Pressure:	no data available
Vapor Density:	no data available
Viscosity:	no data available
Solubility in Water:	soluble in cold water
Partition coefficient n-octanol/water:	not applicable
Evaporation Rate:	no data available
Oxidizing:	None established
Volatiles, % by vol.:	no data available
VOC Content	no data available
HAP Content	Not applicable

10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions.
Conditions to Avoid:	Heat, flames and sparks., Avoid freezing.
Chemical Incompatibility:	Strong oxidizing agents, Strong acids and strong bases
Hazardous Decomposition Products:	Hydrogen chloride, Oxides of nitrogen, Phosgene
Decomposition Temperature:	No data

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology
Oral LD50 value:

triclopyr, triethylamine salt	LD50	=	1,847 mg/kg	rat
ETHANAMINE, N,N-DIETHYL-	LD50	=	460 mg/kg	rat
EDTA	LD50	>	2,000 mg/kg	rat
Citric Acid	LD50	=	3,000 mg/kg	rat

Component Animal Toxicology
Dermal LD50 value:

triclopyr, triethylamine salt	LD50	>	2,000 mg/kg	rabbit
ETHANAMINE, N,N-DIETHYL-	LD50	=	416 - 420 mg/kg	rabbit
EDTA	no data available			
Citric Acid	LD50	Believed to be >	2,000 mg/kg	rabbit

Component Animal Toxicology
Inhalation LC50 value:

triclopyr, triethylamine salt	LC50 4 h	>	2.6 MG/L	rat
ETHANAMINE, N,N-DIETHYL-	LC50 1 h	=	14.47 MG/L	rat
EDTA	no data available			
Citric Acid	no data available			

Product Animal Toxicity

Oral LD50 value:	LD50	Believed to be approximately	3,200 mg/kg	rat
Dermal LD50 value:	LD50	Believed to be >	2,000 mg/kg	rabbit
Inhalation LC50 value:	LC50 1 h	Believed to be >	20 mg/l	rat
Skin Irritation:	May cause mild skin irritation.			

Eye Irritation:	This material is expected to be corrosive.
Skin Sensitization:	May cause allergic skin sensitization in some individuals.
Acute Toxicity:	Corrosive to eyesMay cause mild skin irritation. Ingestion may cause mild gastrointestinal discomfort.Inhalation of mist or vapor may cause irritation to the mucous membranes of the respiratory tract.
Subchronic / Chronic Toxicity:	Not known or reported to cause subchronic or chronic toxicity.

Reproductive and Developmental Toxicity: No reproductive or developmental risk to humans is expected from exposure to this product. The active ingredient in this product has been tested in laboratory animals and no evidence of teratogenicity or fetotoxicity was seen.

triclopyr, triethylamine salt	This chemical has been tested in laboratory animals and no evidence of teratogenicity, embryotoxicity or fetotoxicity was seen.
Citric Acid	This chemical has been tested in laboratory animals and there was no evidence of reproductive toxicity or teratogenicity.

Mutagenicity: Not known or reported to be mutagenic. The active ingredient in this product has been tested in a battery of mutagenicity assays and was found to be non-mutagenic under the conditions of the tests.

triclopyr, triethylamine salt	This material has been shown to be non-mutagenic in the majority of a battery of assays. Not expected to be a mutagenic hazard.
ETHANAMINE, N,N-DIETHYL-	This product was determined to be non-mutagenic in the Ames assay.
Citric Acid	This product was determined to be non-mutagenic in the Ames assay. It was also shown to be negative in the Dominant lethal assay.

Carcinogenicity: This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA. This product contains a component that has been classified by the U.S. EPA as a "Group D" Carcinogen.

triclopyr, triethylamine salt	The carcinogenicity has been evaluated through animal study and it was found not to be carcinogenic., This product is classified by the U.S. EPA as a “Group D” Carcinogen.
Citric Acid	The carcinogenicity has been evaluated through animal study and it was found not to be carcinogenic.

12. ECOLOGICAL INFORMATION

Overview: Practically non- toxic to fish and other aquatic organisms., Highly / very toxic to plants.

Ecological Toxicity Values for: **triclopyr, triethylamine salt**

Oncorhynchus mykiss (rainbow trout)	-	flow-through test 96 h LC50 = 240 mg/l
Lepomis macrochirus (Bluegill sunfish)	-	flow-through test 96 h LC50 = 471 mg/l
Pimephales promelas (fathead minnow)	-	flow-through test 96 h LC50 = 120 mg/l
Coho salmon	-	static test 96 h LC50 = 463 mg/l
Daphnia magna (Water flea)	-	Immobilization 48 h EC50= 1,496 mg/l
Daphnia magna (Water flea)	-	static test 48 h LC50= 1,170 mg/l
Colinus virginianus (Bobwhite quail)	-	8 day dietary LC50 > 10,000 ppm
Anas platyrhynchos (Mallard duck)	-	8 day dietary LC50 > 10,000 ppm
Anas platyrhynchos (Mallard duck)	-	Oral LD50 = 2,055 mg/kg

Ecological Toxicity Values for: **ETHANAMINE, N,N-DIETHYL-**

Pimephales promelas (fathead minnow)	-	static test 96 h LC50 = 43.7 mg/l
Daphnia magna (Water flea)	-	48 h EC50= 200 mg/l

Ecological Toxicity Values for: **Citric Acid**

Lepomis macrochirus (Bluegill sunfish)	-	(static). 96 h LC50 = 1,516 mg/l
Daphnia magna (Water flea)	-	72 h EC50Approximately 120 mg/l

13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary :	If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.
Disposal Methods :	As a nonhazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations.

14. TRANSPORT INFORMATION

Land (US DOT): Not Regulated NOT REGULATED AS A DOT HAZARDOUS MATERIAL
Water (IMDG): NOT REGULATED AS A HAZARDOUS MATERIAL, Marine Pollutant: No

Air (IATA): NOT REGULATED AS A HAZARDOUS MATERIAL,
Emergency Response Guide Number: Not applicable

15. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA):	This is an EPA registered pesticide.
EPA Pesticide Registration Number:	None established
FIFRA Listing of Pesticide Chemicals (40 CFR 180):	Not registered in the US under FIFRA.

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311 / 312 (40 CFR 370.2):

Health	Immediate (Acute) Health Hazard
Physical	None

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

ZUS_SAR302	TPQ (threshold planning quantity)	None established

Reportable Quantity (49 CFR 172.101, Appendix):

ZUS_CERCLA	Reportable quantity	None established
ZUS_SAR302	Reportable quantity	None established

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

ZUS_SAR313	De minimis concentration	None established

Clean Air Act Toxic ARP Section 112r:

CAA 112R	None established

Clean Air Act Socmi:

HON SOC	None established

Clean Air Act VOC Section 111:

CAA 111	None established

Clean Air Act Haz. Air Pollutants Section 112:

ZUS_CAAHAP	None established
ZUS_CAAHRP	None established
CAA AP	None established

State Right-to-Know Regulations Status of Ingredients

Pennsylvania:

CAS #	COMPONENT NAME
ZUSPA_RTK	None established

New Jersey:

CAS #	COMPONENT NAME
ZUSNJ_RTK	None established

Massachusetts:

CAS #	COMPONENT NAME

ZUSMA_RTK None established

California Proposition 65:

CAS #	COMPONENT NAME

ZUSCA_P65 None established

WHMIS Hazard Classification:

None established

16. OTHER INFORMATION

MSDS REVISION STATUS :
SECTIONS REVISED: 1
Major References : Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT. .