Please read the entire document. This Material Safety Data Sheet contains important environmental, health and toxicology information for your employees, and anyone who will use, transport, store, dispose of or handle this product. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information contained herein must be incorporated in your MSDS.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EVEREST® 2.0 Herbicide
EPA REGISTRATION NUMBER(S): 66330-391
SYNONYM(S): ARY-0454-105 SOLUBLE CONCENTRATE HERBICIDE

COMPANY
Arysta LifeScience North America, LLC 15401 Weston Parkway, Suite 150 Cary, NC 27513

EMERGENCY TELEPHONE NUMBERS	
HEALTH EMERGENCY:	SPILL EMERGENCY:
1-866-303-6952, or 1-651-632-8946	**1-800-424-9300, or 1-703-527-3887**

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient(s)/ Hazardous Inert Ingredient(s)	CAS #	Exposure Limits*	% Weight	% Volume
Flucarbazone-sodium Technical [4,5-Dihydro-3-methoxy-4-methyl-5-oxo-N-((2-(trifluoromethoxy)phenyl)sulfonyl)-1H-1,2,4-triazole-1-carboxamide, sodium salt]	181274-17-9	**TWA**[a] OSHA PEL[b]: None ACGIH TLV[c]: None NIOSH REL[d]: None	35.0	NDA
Cloquintocet-Mexyl Technical: (*RS*)-1-methylhexyl (5-chloroquinolin-8-yloxy)acetate	99607-70-2	**TWA**[a] OSHA PEL[b]: None ACGIH TLV[c]: None NIOSH REL[d]: None	7.5	NDA
Propylene Glycol	57-55-6	**TWA**[a] OSHA PEL[b]: None ACGIH TLV[c]: None NIOSH REL[d]: None	6.0	NDA

Only the identities of the active ingredient(s) and any hazardous inert ingredients are listed. Specific information on all of this product's ingredients can be obtained by the treating medical professional or spill emergency responder for the management of exposures, spills, or safety assessments.

*Source: *Guide to Occupational Exposure Values 2008*, published by ACGIH

[a]**TWA**: Time-weighted average exposure concentration for a conventional 8-hour (TLV, PEL) or up to a 10-hour (REL) workday and a 40-hour workweek.

[b]**OSHA PEL**: Occupational Safety and Health Administration Permissible Exposure Limits.

[c]**ACGIH TLV**: American Conference of Governmental Industrial Hygienists, Inc., Threshold Limit Values.

[d]**NIOSH REL**: National Institute for Occupational Safety and Health Recommended Exposure Limits.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION:

- **HARMFUL IF ABSORBED THROUGH SKIN**
- **AVOID CONTACT WITH SKIN, EYES OR CLOTHING**
- **WASH THOROUGLY WITH SOAP AND WATER AFTER HANDLING**
- **CAUSES MODERATE EYE IRRITATION**
- **KEEP OUT OF REACH OF CHILDREN**

Acute Health Hazards

Eye: This product is mildly irritating to the conjunctiva and iris of the eyes. Symptoms of irritation were cleared within 72 hours post-treatment.

Skin: This product is slightly irritating to the skin. This product is not a skin sensitizer.

Ingestion: Not harmful by ingestion under normal handling operations.

Inhalation: Not harmful by inhalation under normal handling operations.

Chronic Health Hazards (Including Cancer): No evidence of carcinogenicity based on long-term animal studies. This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

Reproductive and Developmental Toxicity: No evidence of reproductive and developmental toxicity based on animal studies.

SECTION 4: FIRST AID MEASURES

Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

Eyes: Hold eyelids open and rinse slowly and gently with water for 15 to 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.

Inhalation: First, remove victim to fresh air or uncontaminated area. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth. Call a poison control center or doctor for treatment advice.

Ingestion: If ingestion is suspected, call a physician or poison control center immediately for treatment advice. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger, or, if available, by administering syrup of ipecac. If syrup of ipecac is available, administer 1 tablespoonful (15 ml) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person.

Notes to Physician: No specific antidote is available. Treat the patient symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Limits in Air (% by volume):		
	Upper:	NA
	Lower:	NA
Flash Point:		>93°C
	Method Used:	Tag closed cup
Autoignition Temperature:		NDA
LEL/UEL:		NDA
NFPA Hazard Classification:		
	Health:	1
	Flammability:	1
	Reactivity:	0
	Other:	None
Extinguishing Media:		Foam, CO_2, dry chemical, water-fog
Special Fire Fighting Procedures:		Smoke from fires involving this material may present unusual hazards. Avoid breathing smoke and mists. Avoid contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Read the entire document. Special Protective Equipment: Wear positive pressure self–contained breathing apparatus.
Hazardous Combustion Products:		Emits toxic fumes under fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

EMERGENCY PHONE NUMBERS
Exposure Calls (PROSAR): 1-866-303-6952 or 1-651-632-8946 (International)
Spill Calls (CHEMTREC): 1-800-424-9300 or 1-703-527-3887

Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing dusts and skin contact. Use recommended protective equipment while carefully sweeping up spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways.

SECTION 7: HANDLING AND STORAGE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Read entire label. Use strictly in accordance with label precautionary statements and directions.

HANDLING PROCEDURES: KEEP OUT OF REACH OF CHILDREN AND ANIMALS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. Personnel handling this product should be thoroughly trained as to its hazards. Do not ingest. Avoid getting material on clothing. Use handling, storage and disposal procedures that will prevent contamination of water, food or feed.

STORING PROCEDURES: Do not store in or around home. Store unused product in a cool, ventilated, dry and locked area. Do not allow prolonged storage in areas with high temperature.

MIN/MAX STORAGE: Min Temp: Not determined; Max Temp: Not determined.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (category A) made of materials such as butyl rubber ≥14 mils, natural rubber ≥14 mils, neoprene rubber ≥14 mils, or nitrile rubber ≥14 mils
- Shoes plus socks

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off-white to beige viscous liquid
Odor:	Mild characteristic odor
Physical State:	Liquid
pH:	7.0 (1% suspension)
Boiling Point:	NDA
Melting Point:	NDA
Freezing Point	NDA
Vapor Pressure:	NDA
Vapor Density:	NDA
Specific Gravity:	1.20
Evaporation Rate:	NA
Solubility:	NDA
Percent Solids by Weight:	NDA
Percent Volatile:	NDA
Volatile Organic Compounds (VOC):	NDA
Molecular Weight:	NDA
Viscosity:	NDA

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable
Hazardous Polymerization:	Will not occur
Flash Point:	>93°C
Flammable Point:	NDA
Auto Ignition:	NDA
Incompatibility With Other Materials:	Avoid contact with strong alkaline or acidic materials.
Hazardous Decomposition Products:	Carbon monoxide, Carbon dioxide, Nitrogen oxides. Hazardous polymerization will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute:

Eye and Skin: Mildly irritating to eyes and slightly irritating to the skin (rabbits). Not a contact sensitizer.

Dermal Toxicity: The dermal LD_{50} in rats is > 2 g/kg.

Oral Toxicity: The oral LD_{50} in female rats is > 5 g/kg.

Inhalation Toxicity: The 4-hour LC_{50} in rats is > 2.08 mg/L.

(The following information pertains to the active ingredient, Flucarbazone-sodium technical.)

Subchronic: In a subacute dermal study, rats were exposed to technical at 1,000 mg/kg for 6 hr/day for 22 applications. No systemic effects were observed in the treated animals. Subacute studies were conducted in rats and mice to investigate the immunotoxicological potential of technical. Rats were treated by oral gavage for 2 weeks at doses of 100, 300, 600, 1000 or 2500 mg/kg. Mice were administered dietary concentrations of 30, 100 or 1000 ppm for 2 weeks. No treatment-related adverse immunotoxic effects were determined at the end of the study in either species. The NOELs for overall toxicity were 300 mg/kg and 1000 ppm, for rats and mice, respectively.

In a 28-day subacute feeding study, technical was administered to rats at dietary concentrations of 100, 250, 2500 or 10000 ppm. The NOEL was 250 ppm based on immunotoxic effects (decreased splenic cell counts, increased macrophage activation and decreased IgA titers). In a Plaque-forming-cell assay conducted to investigate the immunotoxicological potential of technical, rats were administered dietary concentrations of 1000, 5000 or 20000 ppm for 4 weeks. A special function immunotoxicological test was performed at the end of exposure. There were no treatment-related findings observed at dietary levels up to and including 20000 ppm. The NOEL in the Plaque-forming-cell assay was 20000 ppm, the highest dose tested.

Subchronic (90 day) feeding studies were conducted on technical using mice, rats, and dogs at maximum doses of 7000, 20000, and 50000 ppm, respectively. No treatment-related findings were observed in mice at dietary levels up to and including the highest dose tested. In rats, effects observed included clinical signs of toxicity, changes in clinical chemistries, immunologic changes, reduced spleen weights and histopathological findings in the forestomach. The immunologic changes were completely or largely reversible with only minimal changes observed at the end of a 5-week recovery period. When dogs were administered technical, effects observed included changes in clinical chemistries, hematological changes, red discoloration of the gastric mucosa at necropsy, increased liver and adrenal weights, and histopathological findings (stomach, liver, kidney, adrenals). The overall NOELs established in these studies were 7000 ppm for mice, 250 ppm for rats, and 1000 ppm for dogs.

Chronic Toxicity: Dogs were administered Flucarbazone-sodium at dietary concentrations of 200, 1000 or 5000 ppm for 1 year. Effects observed in the study included decreased body weights, increased levels of ALAT, ASAT, GLDH, and N-Demethylase, transient decreased levels of thyroxine (T4), and increased liver weights. The decrease in T4 levels was most likely related to an increased hepatic clearance and not a primary effect on the thyroid. This was based on the absence of effects on the other thyroid biomarkers, the slightly increased N-Demethylase levels, and the increased liver weights. The overall NOEL in the dog was 200 ppm. In a 2-year study, rats were administered Flucarbazone-sodium via the diet. The mean daily intake per kg body weight was adjusted on a weekly basis to achieve a daily exposure of 2.5, 7.5, 125 or 1000 mg/kg. Effects observed at the end of the study included decreased body weights, increased food consumption, and an increased incidence of some gross- and histopathological-findings observed in the stomach. The NOEL in the rat was 125 mg/kg.

Carcinogenicity: Flucarbazone-sodium was investigated for carcinogenicity in chronic feeding studies using rats and mice at maximum levels of 1000 mg/kg and 7000 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

Mutagenicity: The results of in vitro and in vivo mutagenicity studies on Flucarbazone-sodium are all negative.

Developmental Toxicity: In a developmental toxicity study in rats, Flucarbazone-sodium was administered by oral gavage during gestation at doses of 100, 300 or 1000 mg/kg. Flucarbazone-sodium did not induce any maternal or developmental toxicity at doses up to and including 1000 mg/kg, the limit dose. The NOEL for maternal and developmental toxicity in the rat was 1000 mg/kg. In a developmental toxicity study in rabbits, technical was administered by oral gavage during gestation at doses of 100, 300, 500, or 1000 mg/kg. Developmental effects such as abortions, decreased fetal weights, and delayed skeletal ossification occurred in correlation with systemic maternal toxicity. The NOEL for both maternal and developmental toxicity in the rabbit was 100 mg/kg.

Reproduction: In a reproduction study, Flucarbazone-sodium was administered to rats for 2 generations at dietary concentrations of 50, 4000 or 20000/12000 ppm. The high dose was reduced to 12000 ppm after five weeks due to a sharp increase in food intake that resulted in unphysiologically high feces excretion and water consumption accompanied by diarrhea. Other parental toxicity included decreased body weights, decreased organ weights (liver, uterus, spleen), and an increased incidence of caecal dilatations. Effects observed in the offspring included decreased pup weights, decreased liver weights and an increased incidence of a marbled liver surface and air-filled stomachs in pups necorpsied at culling. The overall parental NOEL was 50 ppm. The NOEL for reproductive toxicity was 4000 ppm.

Neurotoxicity: In an acute neurotoxicity screening study using rats, Flucarbazone-sodium was administered as a single oral dose at levels of 125, 500 or 2000 mg/kg. Transient clinical signs of toxicity and neurobehavorial effects were observed at the high dose without correlating micropathological findings. The NOEL for microscopic lesions was 2000 mg/kg, the highest dose tested. The NOEL for overall toxicity was 500 mg/kg. In a 13-week neurotoxicity screening study, Flucarbazone-sodium was administered to rats at dietary concentrations of 250, 2000 or 20000 ppm. Body weight and food consumption was reduced at the high-dose level. Functional observational battery (FOB) and automated measures of motor and locomotor activity were not affected by treatment. There were no treatment-related microscopic lesions in neural tissues or skeletal muscle in any of the treated animals. There was no evidence of neurotoxicity at any dietary level. The NOEL for microscopic lesions was 20000 ppm, the highest dose tested. The NOEL for overall toxicity was 2000 ppm.

Toxicity of Other Components:

Cloquintocet-Mexyl:
Test results reported in Section 11 for the final product take into account any acute hazards related to the Cloquintocet-Mexyl in the formulation.

Propylene Glycol:
Test results reported in Section 11 for the final product take into account any acute hazards related to the Propylene Glycol in the formulation. Reported to cause central nervous system depression (anesthesia, dizziness, and confusion), headache and nausea. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs:
Flucarbazone-sodium: Liver, stomach
Cloquintocet-Mexyl: Not Applicable
Propylene Glycol: Central nervous system, kidney, liver

SECTION 12: ECOLOGICAL INFORMATION

Aquatic Organism Toxicity: As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats of concern.

The following information is based on the active ingredient, Flucarbazone-sodium technical.

Fish toxicity: LC_{50} (96-hr) > 96.7 mg/L (Rainbow trout)

LC_{50} (96-hr) > 99.3 mg/L (Bluegill sunfish)

Invertebrate toxicity: EC_{50} (48-hr) = 38.8 mg/L (Daphnia magna)
EC_{50} > 10,000 mg/L (bacteria)
EC_{50} (96-hr) = 6.4 mg/L (green algae)

Avian Toxicity: Flucarbazone-sodium is not toxic to birds.

Acute oral LD_{50} (Bobwhite quail): > 2000 mg/kg

Subchronic oral LC_{50}: > 4646 mg/kg (Bobwhite quail)
> 4969 mg/kg (Mallard duck)

Reproductive toxicity NOEC: 1311 mg/kg (Bobwhite quail)
223 mg/kg (Mallard duck)

Other Non-Target Organisms: Flucarbazone-sodium is not toxic to bees.
The acute LD_{50} is > 445 µg/bee for oral and > 200 µg/bee for direct contact.

SECTION 13: DISPOSAL CONSIDERATIONS

Check governmental regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

SECTION 14: TRANSPORT INFORMATION

D.O.T. Shipping Name:	(pesticide, non-regulated)
Technical Shipping Name:	NA
Packing Group:	NA
D.O.T. Hazard Class:	NA
U.N/N.A. Number:	NA
Product RQ (lbs):	NA
D.O.T. Label:	NA
D.O.T. Placard:	NA
Marine Pollutant:	No
IMO :	
IMO Label:	Non-Regulated
IMO Placard:	Not regulated
European Road/Rail:	
Class:	Not regulated

SECTION 15: REGULATORY INFORMATION

U.S Federal Regulations

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act): All pesticides are governed under FIFRA. Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

CERCLA (Comprehensive Response Compensation, and Liability Act): None

OSHA (Occupational Safety and Health Administration): NA

SARA Title III (SUPERFUND Amendments and Reauthorization Act):

Section 302 (EHS) TPQ: NONE

Section 304 (EHS) RQ: NONE

Section 311/312 CATEGORIES
1. Immediate (Acute) Health Effects; **YES**
2. Delayed (Chronic) Health Effect; **YES**
3. Fire Hazard; **NO**
4. Sudden Release of Pressure Hazard; **NO**
5. Reactivity Hazard; **NO**

TSCA (Toxic Substance Control Act): This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

State Regulations: Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities.

SECTION 16: OTHER INFORMATION

Reason for issue:	Changes to product composition (Section 2), Toxicological information (Section 11), and Regulatory information (Section 15)
Prepared by:	Ashley R. Brown
Issue date:	01/21/2011
Supersedes date:	08/20/2010
MSDS number:	00389

The information in this MSDS is based on data available to us as of the issue date given herein, and believed to be correct. Contact Arysta LifeScience North America LLC at (919) 678-4900 to determine if additional data and information have become available since the issue date.

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