



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 WHMIS. 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: NextStep™ NG Herbicide
PMRA REGISTRATION NUMBER: 29614
SYNONYM(S): None

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

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

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Table with 5 columns: Active Ingredient(s)/Hazardous Inert Ingredient(s), CAS #, Exposure Limits*, % Weight, % Volume. Row 1: Clodinafop-Propargyl, 105512-06-9, None, 6.35, NA

Active Ingredient(s)/ Hazardous Inert Ingredient(s)	CAS #	Exposure Limits*	% Weight	% Volume
Acetophenone	98-86-2	<p>TWA^a OSHA PEL^d: None ACGIH TLV^e: 10 ppm 49 mg/m³ NIOSH REL^f: None None</p> <p>STEL^b/CEIL(C)^c OSHA PEL: None ACGIH TLV: None NIOSH REL: None</p>	≤ 8	NDA
Propylene Glycol	57-55-6	<p>TWA OSHA PEL: None ACGIH TLV: None NIOSH REL: None DFG MAK^g: None</p>	NDA	NDA
Cloquintocet-Mexyl	99607-70-2	None	NDA	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**STEL**: Short-Term Exposure Limit. Usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during the workday, even if the 8-hour TWA is within the TLV-TWA, REL-TWA, or REL-TWA.

^c**CEIL(C)**: The concentration that shall not be exceeded during any part of the working exposure. NIOSH Ceiling – The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assessed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during the workday.

^d**OSHA PEL**: Occupational Safety and Health Administration Permissible Exposure Limits.

^e**ACGIH TLV**: American Conference of Governmental Industrial Hygienists, Inc., Threshold Limit Values.

^f**NIOSH REL**: National Institute for Occupational Safety and Health Recommended Exposure Limits.

^g**DFG MAK**: Federal Republic of Germany (DFG), Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area 2007 Maximum Concentration Values in the Workplace (MAKs).

SECTION 3: HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

CAUTION:

- SKIN IRRITANT
- ATTENTION, CONTAINS THE ALLERGEN SOY
- KEEP OUT OF THE REACH OF CHILDREN
- MAY IRRITATE EYES AND SKIN
- DO NOT WEAR CONTACT LENSES WHEN USING
- AVOID CONTACT WITH CLOTHING
- DO NOT GET IN EYES OR ON SKIN

Acute Health Hazards

Signs and Symptoms of Systemic Effects: May cause eye or skin irritation. Exposure to high vapour levels may cause headache, dizziness, numbness, nausea, incoordination, or other central nervous system effects.

Chronic Health Hazards (Including Cancer): (Clodinafop-Propargyl) Liver changes, anemia and skin reactions. Increased incidences of benign tumors in mice (liver) and rats (ovary, prostate).

Teratology (Birth Defects) Information: No evidence of teratogenic effects was obtained.

Reproduction Information: No evidence of mutagenic or reproductive effects was obtained.

Potentially Aggravated Condition: Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product. Allergic skin reactions are possible.

SECTION 4: FIRST AID MEASURES

IN CASE OF POISONING, contact a physician or poison control centre IMMEDIATELY. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

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 physician or a poison control center. Do not give anything by mouth to an unconscious person.

Skin: 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.

Inhalation: Move person to fresh air. If 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 treatment advice.

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.

Notes to Physician: Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Limits in Air (% by volume):		
	Upper:	Not available
	Lower:	Not available
Flash Point:		85°C
	Method Used:	Closed Cup
Autoignition Temperature:		Not available
LEL/UEL:		NDA
NFPA Hazard Classification:		
	Health:	2
	Flammability:	2
	Reactivity:	0
	Other:	NDA
Extinguishing Media:		CO ₂ , dry chemical, foam, water fog
Special Fire Fighting Procedures:	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. Combustible liquid. This product contains aromatic hydrocarbon. Avoid temperatures above the flash point. Keep fire exposed containers cool by spraying with water. Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse.	
Hazardous Combustion Products:	Oxides or carbon and smoke are likely. Also toxic fumes of Cl ⁻ and NO _x from decomposition of active ingredients. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.	

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

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 clothing and eye protection to prevent skin and eye contact. Use adequate ventilation and wear equipment and clothing as described in Section 8 and/or the product label.

Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent 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

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MSDS Number: 00452

Issue Date: 10/18/2011

NDA = No Data Available

NA = Not Applicable

soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Spillage or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

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 practices: KEEP OUT OF REACH OF CHILDREN. 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, and 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. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, 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.

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 vapors or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling 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: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

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 any P, R 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:	Light brown liquid
Odor:	Sweet aromatic
Physical State:	Liquid
pH:	5 – 7 (1% aqueous solution @ 25°C)
Formulation Type:	Emulsifiable concentrate
Boiling Point:	NDA
Melting Point:	NA
Freezing Point	NDA
Vapor Pressure:	4.0 x 10 ⁻⁸ mm Hg @ 20°C (Clodinafop-Propargyl Technical)
Vapor Density:	NDA
Specific Gravity:	0.945 g/mL @ 20°C
Evaporation Rate:	NDA
Solubility in Water:	4 mg/L @ 25°C (Clodinafop-Propargyl Technical)
Percent Solids by Weight:	NA
Percent Volatile:	NDA
Volatile Organic Compounds (VOC):	NDA
Molecular Weight:	NDA
Viscosity:	NDA
Corrosion Characteristics:	NDA

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable at room temperature.
Hazardous Polymerization:	Polymerization will not occur.
Incompatibility With Other Materials:	None known.
Hazardous Decomposition Products:	Can decompose at high temperatures forming toxic gases.
Conditions to avoid:	Ignition sources.
Impact Explodability:	Not sensitive.
Oxidation/Reduction Properties:	NDA

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Eye Irritation: Slightly Irritating (Rabbit)

Skin Irritation: Mildly Irritating (Rabbit)

Dermal Toxicity: Practically Non-Toxic. Dermal LD₅₀ (Rabbit) : >5,000 mg/kg body weight

Oral Toxicity: Practically Non-Toxic. Oral LD₅₀ (Rat) : >5,000 mg/kg body weight

Inhalation Toxicity: Practically Non-Toxic. Inhalation LC₅₀ (Rat): >5.57 mg/L air – 4 hours

Skin Sensitization: Not a Sensitizer (Guinea Pig)

Chronic/Subchronic Toxicity Studies

Clodinafop-Propargyl: Liver changes, anemia and skin reactions.

Carcinogenicity

Clodinafop-Propargyl: Increased incidences of benign tumors in mice (liver) and rats (ovary,

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prostate).

Reproductive/Developmental Effects

Clodinafop-Propargyl: None observed.

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.

Cloquintocet-Mexyl

Causes mild eye and skin irritation. May be harmful if inhaled. Allergic skin reactions are possible.

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

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

Target Organs

Active Ingredient

Clodinafop-Propargyl: Liver, skin, bone marrow.

Inert Ingredients

Cloquintocet-Mexyl: Eye, skin, lung, digestive tract.

Acetate Ester: Not applicable.

Acetophenone: Not applicable.

Propylene Glycol: CNS, kidney, liver.

SECTION 12: ECOLOGICAL INFORMATION

Summary of effects

NextStep™ NG Herbicide selectively controls certain grass weeds of cereal crops. The active ingredient, Clodinafop-Propargyl, is highly toxic to fish, moderately toxic to water invertebrates (water flea), but has low toxicity to birds and practically non-toxic to bees.

Eco-Acute Toxicity

Clodinafop-Propargyl:	
Green Algae 5-Day EC ₅₀	> 3.9 ppm
Bee LC ₅₀ /EC ₅₀ (Contact)	> 100 µg/bee
Invertebrates (Water Flea) LC ₅₀ /EC ₅₀	> 2.0 ppm
Fish (Trout) 96-hr LC ₅₀ /EC ₅₀	0.39 ppm
Fish (Bluegill) 96-hr LC ₅₀ /EC ₅₀	0.21 ppm
Birds (8-day Dietary - Bobwhite Quail) LC ₅₀ /EC ₅₀	> 5,200 ppm
Birds (8-day Dietary – Mallard Duck) LC ₅₀ /EC ₅₀	> 5,200 ppm

Eco-Chronic Toxicity

Clodinafop-Propargyl:	
Invertebrates (Water Flea) 21-Day NOEC	0.23 mg/L
Fish (Trout) 21-Day NOEC	0.15 mg/L

Environmental Fate

The active ingredient Clodinafop-Propargyl is biologically degraded by microorganisms in soil or water, and is also degraded by soil hydrolysis and photolysis. It has a low bioaccumulation

potential. It is not persistent in the environment, with DT₅₀ values of less than one day in soil or natural water. The mobility in soil is low to moderate. This material as a bulk liquid sinks in water (24 hr observations) and gradually disperses as an emulsion.

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 labeled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION 14: TRANSPORT INFORMATION

DOT Classification :

Ground Transport – NAFTA

Non-bulk containers (<119 gallons): Not regulated.

Bulk containers (>119 gallons):

Proper Shipping Name: Compounds, Weed Killing, Liquid (Acetophenone)

Hazard Class: Class 3

Identification Number: NA 1993

Packing Group: PG III

Comments:

Water Transport – International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Clodinafop-Propargyl, Cloquintocet-Mexyl), Marine Pollutant

Hazard Class: Class 9

Identification Number: UN 3082

Packing Group: PG III

Air Transport – International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Clodinafop-Propargyl, Cloquintocet-Mexyl)

Hazard Class: Class 9

Identification Number: UN 3082

Packing Group: PG III

SECTION 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to WHMIS requirements, except for use of the 16 headings. This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registrations No.: 29614

SECTION 16: OTHER INFORMATION

Reason for issue:	Changes to Transportation Information (Section 14)
Prepared by:	Ashley R. Brown
Issue date:	10/18/2011
Supersedes date:	05/14/2010
MSDS number:	00452

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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