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	Print Date: 5/2/2018
	SDS Number: R0308409
Drewfloc™ 434 polymer ™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries 773331	Version: 1.5

SECTION 1. IDENTIFICATION

Product identifier

Trade name : Drewfloc™ 434 polymer
™ Trademark, Solenis or its subsidiaries or affiliates,
registered in various countries

Recommended use of the chemical and restrictions on use

Use of the Substance/Mixture : Flocculating agent

Details of the supplier of the safety data sheet Solenis LLC 500 Hercules Road Wilmington, Delaware 19808 United States of America (USA) RegulatoryRequestsNA@solenis.com	Emergency telephone number 1-844-SOLENIS (844-765-3647) / 606-329-5705 Product Information 1-844-SOLENIS (844-765-3647)
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SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Combustible Dust

GHS label elements

Signal word : Warning
Hazard statements : May form combustible dust concentrations in air.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (%)
AMIDE	Trade Secret	Not a dangerous substance or mixture according to the Globally Harmonised	>= 10 - < 15

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		System (GHS).	
ORGANIC ACID	Trade Secret	Eye Irrit. 2A; H319	>= 1.5 - < 5

SECTION 4. FIRST AID MEASURES

- General advice : No hazards which require special first aid measures.
- If inhaled : If breathed in, move person into fresh air.
 If unconscious, place in recovery position and seek medical advice.
 If symptoms persist, call a physician.
- In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
- In case of eye contact : Remove contact lenses.
 Protect unharmed eye.
- If swallowed : Do not give milk or alcoholic beverages.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
 stomach or intestinal upset (nausea, vomiting, diarrhea)
 irritation (nose, throat, airways)
- Notes to physician : No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Water spray
 Foam
- Specific hazards during firefighting : Organic dusts at sufficient concentration can form explosive mixtures in air.
 Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon monoxide
 Carbon dioxide (CO₂)
 Nitrogen oxides (NO_x)
 acid vapors
 Ammonia
 Sodium oxides

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sulfur oxides

- Specific extinguishing methods : Product is compatible with standard fire-fighting agents.
- Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid dust formation.
 Avoid breathing dust.
 Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
 Comply with all applicable federal, state, and local regulations.
- Environmental precautions : Prevent product from entering drains.
 Prevent further leakage or spillage if safe to do so.
 If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
 Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Take measures to prevent the build up of electrostatic charge.
 Provide appropriate exhaust ventilation at places where dust is formed.
- Advice on safe handling : Avoid dust formation.
 Smoking, eating and drinking should be prohibited in the application area.
 For personal protection see section 8.
- Conditions for safe storage : Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 No smoking.
 Electrical installations / working materials must comply with the technological safety standards.
- Materials to avoid : No materials to be especially mentioned.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type	Control	Basis
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		(Form of exposure)	parameters / Permissible concentration	
AMIDE	Trade Secret	TWA	10 mg/m3	US WEEL

Engineering measures : Provide appropriate exhaust ventilation at places where dust is formed.
 General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

- Respiratory protection : No personal respiratory protective equipment normally required.
- Eye protection : Safety glasses
- Skin and body protection : Wear resistant gloves (consult your safety equipment supplier).
 Wear as appropriate:
 Safety shoes
- Hygiene measures : Avoid breathing dust.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : granular
- Colour : white, light yellow
- Odour : amine-like
- Odour Threshold : No data available
- pH : 7
 Concentration: 10 g/l
- Melting point/freezing point : Not applicable
- Boiling point/boiling range : Not applicable
- Flash point : Not applicable
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Self-ignition : No data available

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Upper explosion limit : No data available

Lower explosion limit : 30,000 mg/m3
 No data available

Vapour pressure : < 0.02 hPa

Relative vapour density : No data available

Relative density : No data available

Density : ca. 0.72 g/cm3

Bulk density : 600 kg/m3

Solubility(ies)
 Water solubility : slightly soluble

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Decomposition temperature : > 150 °C

Viscosity
 Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Product will not undergo hazardous polymerization.

Conditions to avoid : Heat, flames and sparks.
 Heat
 Exposure to moisture
 Keep away from heat, flame, sparks and other ignition sources.

Incompatible materials : Acids
 Alkali metals

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Alkaline earth metals
aluminum
Chlorine
magnesium
Metals
nitrates
Oxidizing agents
Strong bases
strong reducing agents

Hazardous decomposition products : **Carbon monoxide**
Carbon dioxide (CO2)
Nitrogen oxides (NOx)
acid vapors
Ammonia
Sodium oxides
Sulphur oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : LD 50 (Rat): > 5,000 mg/kg

Components:

ORGANIC ACID:

Acute oral toxicity : LD 50 (Rat): 3 g/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Result: Not irritating to skin

Components:

AMIDE:

Result: Not irritating to skin

ORGANIC ACID:

Result: Slightly irritating to skin

Serious eye damage/eye irritation

Not classified based on available information.

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Product:

Result: Mildly irritating to eyes

Remarks: **Unlikely to cause eye irritation or injury.****Product dust may be irritating to eyes, skin and respiratory system.****Components:****AMIDE:**

Result: Not irritating to eyes

ORGANIC ACID:

Result: Severely irritating to eyes

Respiratory or skin sensitisation**Skin sensitisation**

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Product:

Species: Guinea pig

Method: OECD Test Guideline 406

Germ cell mutagenicity

Not classified based on available information.

Components:**AMIDE:**Genotoxicity in vitro : Test Type: Ames test
Result: negative**Carcinogenicity**

Not classified based on available information.

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Product:

No aspiration toxicity classification

Further information
Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION
Ecotoxicity
Product:

- Toxicity to fish : LC 50 (Danio rerio (zebra fish)): > 1 - 10 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203
 Remarks: Based on a similar product formulation.
- LC 50 (Pimephales promelas (fathead minnow)): 3.3 mg/l
 Exposure time: 96 h
- LC50 (Oncorhynchus mykiss (rainbow trout)): 4.56 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203
 Remarks: see user defined free text
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): ca. 35 mg/l
 Exposure time: 48 h
 Method: OECD Test Guideline 202
- Toxicity to microorganisms : IC50 (Bacteria): 755 mg/l
 Exposure time: 15 min
 Remarks: see user defined free text

Ecotoxicology Assessment

- Acute aquatic toxicity : Acute aquatic toxicity Category 2; Toxic to aquatic life.
- Chronic aquatic toxicity : Not classified based on available information.

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Components:**AMIDE:**

Toxicity to fish : LC 50 (Leuciscus idus (Golden orfe)): > 6,810 mg/l
 Exposure time: 96 h

LC 50 (Poecilia reticulata (guppy)): 17,500 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other : EC 50 (Water flea (Daphnia magna)): 3,910 mg/l
 aquatic invertebrates Exposure time: 48 h
 Method: Static

ORGANIC ACID:

Toxicity to fish : LC 50 (Carassius auratus (goldfish)): 440 - 706 mg/l
 Exposure time: 96 h

Persistence and degradability**Product:**

Biodegradability : Result: Readily biodegradable.

Physico-chemical : Remarks: At natural pHs (>6) the product degrades due to
 removability hydrolysis to more than 70% in 28 days.
 The hydrolysis products are not harmful to aquatic organisms.

Components:**AMIDE:**

Biodegradability : Remarks: Expected to be ultimately biodegradable

Bioaccumulative potential**Components:****AMIDE:**

Bioaccumulation : Species: Green algae (Chlorella fusca vacuolata)
 Bioconcentration factor (BCF): 11,700
 Exposure time: 24 h
 Concentration: 0.05 mg/l
 Method: Static

Partition coefficient: n- : log Pow: -2.11
 octanol/water

Mobility in soil

No data available

Other adverse effects**Product:**

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Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.

The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

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Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Marine pollutant	no
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Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Combustible Dust

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

The components of this product are reported in the following inventories:

- DSL : This product contains one or more components that are not on the Canadian DSL and have annual quantity limits.
- ENCS : Not in compliance with the inventory
- AICS : On the inventory, or in compliance with the inventory
- KECI : Not in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory

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TCSI : Not in compliance with the inventory

TSCA : Not On TSCA Inventory

TSCA list

No substances are subject to a Significant New Use Rule.

SECTION 16. OTHER INFORMATION
Further information

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Full text of H-Statements

H319 : Causes serious eye irritation.

Full text of other abbreviations

Eye Irrit. : Eye irritation

Further information

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by the Solenis Environmental Health and Safety Department.

Sources of key data used to compile the Safety Data Sheet

Key literature references and sources of data

SOLENIS Internal data

SOLENIS internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO -

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International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

US / EN