



SIGNATURE™ XTRA STRESSGARD®

Version 1.0 / USA
102000029598

1/11
Revision Date: 01/26/2015
Print Date: 09/27/2016

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name SIGNATURE™ XTRA STRESSGARD®
Product code (UVP) 81691088
SDS Number 102000029598
EPA Registration No. 432-1541

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide
Restrictions on use No restrictions known.

Information on manufacturer

Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number

SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

Eye irritation : Category 2B
Signal word: Warning

Hazard statements

Causes eye irritation.

Precautionary statements

Wash thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.

Other hazards

No other hazards known.



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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Fosetyl Aluminium	39148-24-8	60.00
Sodium diisopropyl naphthalene sulphonate	1322-93-6	6.54
Formic acid	64-18-6	2.00
Crystalline quartz (respirable)	14808-60-7	0.35

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move 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 physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	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 physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms	The following symptoms may occur:, Skin, eye and mucous membrane irritation
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Indication of any immediate medical attention and special treatment needed

Risks	Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Foam, Dry powder, Carbon dioxide (CO2), Water spray
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Unsuitable	None known.
Special hazards arising from the substance or mixture	In the event of fire the following may be released: Carbon monoxide (CO), Nitrogen oxides (NOx), Oxides of phosphorus
Advice for firefighters	
Special protective equipment for fire-fighters	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	not applicable
Autoignition temperature	no data available
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Explosivity	no data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or



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applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Fosetyl Aluminium (Respirable fraction.)	39148-24-8	1 mg/m3 (TWA)	02 2012	ACGIH
Fosetyl Aluminium	39148-24-8	2 mg/m3 (REL)	2010	NIOSH
Fosetyl Aluminium	39148-24-8	2 mg/m3 (TWA)	1989	OSHA Z1A
Fosetyl Aluminium	39148-24-8	2 mg/m3 (TWA)	06 2008	TN OEL
Fosetyl Aluminium	39148-24-8	2ug/m3 (AN ESL)	07 2011	TX ESL
Fosetyl Aluminium	39148-24-8	20ug/m3 (ST ESL)	07 2011	TX ESL
Fosetyl Aluminium	39148-24-8	2 mg/m3 (TWA PEL)	08 2010	US CA OEL
Fosetyl Aluminium	39148-24-8	10 mg/m3 (TWA)		OES BCS*
Formic acid	64-18-6	10 ppm (STEL)	02 2012	ACGIH
Formic acid	64-18-6	5 ppm (TWA)	02 2012	ACGIH
Formic acid	64-18-6	9 mg/m3/5 ppm (REL)	2010	NIOSH
Formic acid	64-18-6	9 mg/m3/5 ppm (PEL)	02 2006	OSHA Z1
Formic acid	64-18-6	9 mg/m3/5 ppm (TWA)	1989	OSHA Z1A
Formic acid	64-18-6	9 mg/m3/5 ppm (TWA)	06 2008	TN OEL
Formic acid	64-18-6	90ug/m3 (ST ESL)	07 2011	TX ESL
Formic acid	64-18-6	50ppb	07 2011	TX ESL



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		(ST ESL)		
Formic acid	64-18-6	9ug/m3 (AN ESL)	07 2011	TX ESL
Formic acid	64-18-6	5ppb (AN ESL)	07 2011	TX ESL
Formic acid	64-18-6	9 mg/m3/5 ppm (TWA PEL)	08 2010	US CA OEL
Formic acid	64-18-6	19 mg/m3/10 ppm (STEL)	08 2010	US CA OEL
Formic acid	64-18-6	5 ppm (TWA)		OES BCS*
Crystalline quartz (respirable)	14808-60-7	0.1 mg/m3 (TWA)	1998	JO TLV
Crystalline quartz (respirable) (Respirable fraction.)	14808-60-7	0.025 mg/m3 (TWA)	02 2012	ACGIH
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.05 mg/m3 (REL)	2010	NIOSH
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.1 mg/m3 (TWA)	1989	OSHA Z1A
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.1 mg/m3 (TWA)	06 2008	TN OEL
Crystalline quartz (respirable) (Particulate.)	14808-60-7	14ug/m3 (ST ESL)	02 2013	TX ESL
Crystalline quartz (respirable) (Particulate.)	14808-60-7	0.27ug/m3 (AN ESL)	02 2013	TX ESL
Crystalline quartz (respirable) (Total dust.)	14808-60-7	0.3 mg/m3 (TWA PEL)	08 2010	US CA OEL
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.1 mg/m3 (TWA PEL)	08 2010	US CA OEL
Crystalline quartz (respirable) (Respirable.)	14808-60-7	2.4millions of particles per cubic foot of air (TWA)	2000	Z3
Crystalline quartz (respirable) (Respirable.)	14808-60-7	0.1 mg/m3 (TWA)	2000	Z3
Crystalline quartz (respirable) (Total dust.)	14808-60-7	0.3 mg/m3 (TWA)	2000	Z3

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"



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Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Hand protection	Chemical resistant nitrile rubber gloves
Eye protection	Safety glasses with side-shields
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	green
Physical State	water-dispersible granules
Odor	slight acid-like
Odour Threshold	no data available
pH	3.15 at 10 % 3.66 at 1 %
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Bulk density	32 - 38 lb/ft ³
Evaporation rate	not applicable
Boiling Point	not applicable
Melting / Freezing Point	not applicable
Water solubility	dispersible
Minimum Ignition Energy	not applicable
Decomposition temperature	no data available
Partition coefficient: n-octanol/water	not applicable
Viscosity	not applicable
Flash point	not applicable



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Autoignition temperature	no data available
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Explosivity	no data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	no data available
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Exposure to moisture.
Incompatible materials	Strong oxidizing agents, Strong acids, Strong bases
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Eye contact, Skin contact, Ingestion, Inhalation

Immediate Effects

Eye May cause eye irritation.

Skin May cause skin irritation.

Information on toxicological effects

Acute oral toxicity LD50 (male/female combined rat) 2,860 mg/kg

Acute inhalation toxicity LC50 (male/female combined rat) > 5 mg/l
Exposure time: 4 h
Determined in the form of dust.

LC50 (male/female combined rat) > 20.0 mg/l
Exposure time: 1 h
Determined in the form of dust.
Extrapolated from the 4 hr LC50.

Acute dermal toxicity LD50 (rabbit) > 2,020 mg/kg

Skin irritation Slight irritation (rabbit)

Eye irritation Mild eye irritation. (rabbit)



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Sensitisation Non-sensitizing. (guinea pig)

Assessment repeated dose toxicity

Fosetyl Aluminium did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity

Fosetyl Aluminium was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity

Fosetyl Aluminium was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

Fosetyl Aluminium	39148-24-8	Group A4
Crystalline quartz (respirable)	14808-60-7	Group A2

NTP

Crystalline quartz (respirable)	14808-60-7	2000
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IARC

Crystalline quartz (respirable)	14808-60-7	Overall evaluation: 1
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OSHA

None.

Assessment toxicity to reproduction

Fosetyl Aluminium did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Fosetyl Aluminium did not cause developmental toxicity in rats and rabbits.

Further information

Acute toxicity studies have been bridged from a similar formulation(s).
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) > 122 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient fosetyl aluminium.

Toxicity to aquatic invertebrates EC50 (Daphnia magna (Water flea)) > 100 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient fosetyl aluminium.

Toxicity to aquatic plants IC50 (Desmodosmus subspicatus) > 16 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient fosetyl aluminium.



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Biodegradability	Fosetyl Aluminium: ; rapidly biodegradable
Koc	Fosetyl Aluminium: Koc: 0.1
Bioaccumulation	Fosetyl Aluminium: ; Does not bioaccumulate.
Mobility in soil	Fosetyl Aluminium: Highly mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	Do not re-use empty containers. Consult state and local regulations regarding the proper disposal of container. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

SECTION 15: REGULATORY INFORMATION

EPA Registration No.	432-1541
US Federal Regulations	
TSCA list	
Sodium diisopropylnaphthalene sulphonate	1322-93-6
Formic acid	64-18-6
Crystalline quartz (respirable)	14808-60-7
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)	
None.	
SARA Title III - Section 302 - Notification and Information	



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None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

Formic acid 64-18-6 10,000lbs

US States Regulatory Reporting

CA Prop65

This product contains a chemical known to the State of California to cause cancer.

Crystalline quartz (respirable) 14808-60-7

US State Right-To-Know Ingredients

Fosetyl Aluminium	39148-24-8	CA, MN
Formic acid	64-18-6	CA, CT, IL, MN, NJ, RI
Crystalline quartz (respirable)	14808-60-7	MN

Canadian Regulations

Canadian Domestic Substance List

Sodium diisopropylnaphthalene sulphonate	1322-93-6
Crystalline quartz (respirable)	14808-60-7

Environmental

CERCLA

Formic acid 64-18-6 5,000 lbs

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Sodium diisopropylnaphthalene sulphonate	1322-93-6
Crystalline quartz (respirable)	14808-60-7

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Revision Date: 01/26/2015

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Bayer Environmental Science
SAFETY DATA SHEET



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