

**Bayer Environmental Science**  
SAFETY DATA SHEET**SIGNATURE™ XTRA STRESSGARD®**Version 1.0 / USA  
1020000295981/11  
Revision Date: 01/26/2015  
Print Date: 05/29/2015**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 (24 hours/day)

**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**

<b>Hazardous Component Name</b>	<b>CAS-No.</b>	<b>Concentration % by weight</b>
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

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**SECTION 4: FIRST AID MEASURES**

**Description of first aid measures**

<b>General advice</b>	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
<b>Inhalation</b>	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.
<b>Skin contact</b>	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.
<b>Eye contact</b>	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.
<b>Ingestion</b>	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**

<b>Symptoms</b>	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**

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

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**SECTION 5: FIREFIGHTING MEASURES**

**Extinguishing media**

<b>Suitable</b>	Foam, Dry powder, Carbon dioxide (CO2), Water spray
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<b>Unsuitable</b>	None known.
<b>Special hazards arising from the substance or mixture</b>	In the event of fire the following may be released:, Carbon monoxide (CO), Nitrogen oxides (NOx), Oxides of phosphorus
<b>Advice for firefighters</b>	
<b>Special protective equipment for fire-fighters</b>	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
<b>Further information</b>	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.
<b>Flash point</b>	not applicable
<b>Autoignition temperature</b>	no data available
<b>Lower explosion limit</b>	not applicable
<b>Upper explosion limit</b>	not applicable
<b>Explosivity</b>	no data available

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**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.

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**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**

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



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<b>Autoignition temperature</b>	no data available
<b>Lower explosion limit</b>	not applicable
<b>Upper explosion limit</b>	not applicable
<b>Explosivity</b>	no data available

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**SECTION 10: STABILITY AND REACTIVITY**

**Reactivity**

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

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**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).

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**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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<b>Biodegradability</b>	Fosetyl Aluminium: ; rapidly biodegradable
<b>Koc</b>	Fosetyl Aluminium: Koc: 0.1
<b>Bioaccumulation</b>	Fosetyl Aluminium: ; Does not bioaccumulate.
<b>Mobility in soil</b>	Fosetyl Aluminium: Highly mobile in soils
<b>Environmental precautions</b>	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.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

<b>Product</b>	Dispose in accordance with all local, state/provincial and federal regulations.
<b>Contaminated packaging</b>	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.
<b>RCRA Information</b>	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.

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**SECTION 14: TRANSPORT INFORMATION**

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

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**SECTION 15: REGULATORY INFORMATION**

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



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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 1322-93-6

sulphonate

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 1322-93-6

sulphonate

Crystalline quartz (respirable) 14808-60-7

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**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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