

# SAFETY DATA SHEET



## PUMA® ADVANCE HERBICIDE

Version 2.0 / CDN  
102000017228

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Revision Date: 06/12/2017  
Print Date: 10/03/2017

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

#### Product identifier

**Trade name** PUMA® ADVANCE HERBICIDE

**Product code (UVP)** 79390394

**SDS Number** 102000017228

**PCP Registration No.** 29615

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

**Use** Herbicide

**Restrictions on use** See product label for restrictions.

#### Information on supplier

**Supplier** Bayer CropScience Inc  
#200, 160 Quarry Park Blvd, SE  
Calgary, Alberta T2C 3G3  
Canada

**Responsible Department** Email: SDSINFO.BCS-NA@bayer.com

#### Emergency telephone no.

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

**Product Information Telephone Number** 1-888-283-6847

### SECTION 2: HAZARDS IDENTIFICATION

#### Classified in accordance with Part 2 of the Hazardous Products Regulations

Aspiration hazard, Eye irritation: Category 1

Skin irritation, Carcinogenicity: Category 2

Acute toxicity(Inhalation): Category 4

#### Labelling in accordance with Part 3 of the Hazardous Products Regulations



**Signal word:** Danger

#### Hazard statements

May be fatal if swallowed and enters airways.

Causes serious eye damage.

Causes skin irritation.

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Suspected of causing cancer.  
Harmful if inhaled.

### Precautionary statements

Wear protective gloves/protective clothing/eye protection/face protection.  
Wash thoroughly after handling.  
Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Avoid breathing mist and spray.  
Use only outdoors or in a well-ventilated area.  
IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician.  
Do NOT induce vomiting.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER/doctor/ physician.  
IF ON SKIN: Wash with plenty of water/ soap.  
Specific treatment (see supplemental first aid instructions on this label).  
If skin irritation occurs: Get medical advice/ attention.  
Take off contaminated clothing and wash before reuse.  
IF exposed or concerned: Get medical advice/ attention.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a POISON CENTER/doctor/physician if you feel unwell.  
Store locked up.  
Dispose of contents/container in accordance with local regulation.

### Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.  
No health hazards not otherwise classified.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Fenoxaprop-P-ethyl	71283-80-2	8.8
Mefenpyr-diethyl	135590-91-9	4.4
Benzenesulfonic acid, 4-C10-14-alkyl derivs., calcium salts	90194-26-6	3.2
2-Methylpropan-1-ol	78-83-1	1.8
Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9	11.4
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	52.9
Naphthalene	91-20-3	7.9

## 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.

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<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.
<b>Most important symptoms and effects, both acute and delayed</b>	
<b>Symptoms</b>	To date no symptoms are known.
<b>Indication of any immediate medical attention and special treatment needed</b>	
<b>Risks</b>	Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.
<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

**Suitable** Water spray, Foam, Carbon dioxide (CO<sub>2</sub>), Dry chemical

**Unsuitable** None known.

**Special hazards arising from the substance or mixture** Dangerous gases are evolved in the event of a fire.

### Advice for firefighters

**Special protective equipment for firefighters** 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** 103 °C

**Auto-ignition temperature** No data available

**Lower explosion limit** No data available

**Upper explosion limit** No data available

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**Explosivity** Not applicable

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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** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

**Additional advice** Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

**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** Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. Handle and open container in a manner as to prevent spillage.

**Advice on protection against fire and explosion** Keep away from heat and sources of ignition.

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

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### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Fenoxaprop-P-ethyl	71283-80-2	2.6 mg/m <sup>3</sup> (TWA)		OES BCS*
Mefenpyr-diethyl	135590-91-9	10 mg/m <sup>3</sup> (TWA)		OES BCS*
2-Methylpropan-1-ol	78-83-1	152 mg/m <sup>3</sup> /50 ppm (TWA)	07 2009	CAD AB OEL
2-Methylpropan-1-ol	78-83-1	50 ppm (TWA)	09 2011	CAD BC OEL
2-Methylpropan-1-ol	78-83-1	50 ppm (TWA)	03 2011	CAD MB OEL
2-Methylpropan-1-ol	78-83-1	50 ppm (TWA)	11 2010	CAD ON OEL
2-Methylpropan-1-ol	78-83-1	60 ppm (15 MIN ACL)	05 2009	CAD SK OEL
2-Methylpropan-1-ol	78-83-1	50 ppm (8 HR ACL)	05 2009	CAD SK OEL
2-Methylpropan-1-ol	78-83-1	152 mg/m <sup>3</sup> /50 ppm (TWA)	11 2011	OEL (QUE)
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	1,590 mg/m <sup>3</sup> /400 ppm (TWA)	07 2009	CAD AB OEL
Solvent Naphtha (petroleum), heavy aromatic (Vapor.)	64742-94-5	200 mg/m <sup>3</sup> (TWA)	07 2009	CAD AB OEL
Solvent Naphtha (petroleum), heavy aromatic (Non-aerosol.)	64742-94-5	200 mg/m <sup>3</sup> (TWA)	05 2013	CAD BC OEL
Solvent Naphtha (petroleum), heavy aromatic (Non-aerosol.)	64742-94-5	200 mg/m <sup>3</sup> (TWA)	03 2014	CAD MB OEL
Solvent Naphtha (petroleum), heavy aromatic (Non-aerosol.)	64742-94-5	200 mg/m <sup>3</sup> (TWA)	11 2010	CAD ON OEL

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Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	525 mg/m3 (TWA)	11 2010	CAD ON OEL
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	500 ppm (15 MIN ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic (Vapor.)	64742-94-5	250 mg/m3 (15 MIN ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	400 ppm (8 HR ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic (Vapor.)	64742-94-5	200 mg/m3 (8 HR ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	1,590 mg/m3/400 ppm (TWA)	11 2011	OEL (QUE)
Naphthalene	91-20-3	52 mg/m3/10 ppm (TWA)	07 2009	CAD AB OEL
Naphthalene	91-20-3	79 mg/m3/15 ppm (STEL)	07 2009	CAD AB OEL
Naphthalene	91-20-3	10 ppm (TWA)	09 2011	CAD BC OEL
Naphthalene	91-20-3	15 ppm (STEL)	09 2011	CAD BC OEL
Naphthalene	91-20-3	10 ppm (TWA)	03 2011	CAD MB OEL
Naphthalene	91-20-3	10 ppm (TWA)	11 2010	CAD ON OEL
Naphthalene	91-20-3	15 ppm (STEL)	11 2010	CAD ON OEL
Naphthalene	91-20-3	10 ppm (8 HR ACL)	05 2009	CAD SK OEL
Naphthalene	91-20-3	15 ppm (15 MIN ACL)	05 2009	CAD SK OEL
Naphthalene	91-20-3	79 mg/m3/15 ppm (STEL)	11 2011	OEL (QUE)

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Naphthalene	91-20-3	52 mg/m <sup>3</sup> /10 ppm (TWA)	11 2011	OEL (QUE)
Naphthalene	91-20-3	10 ppm (TLV)		OES BCS*

\*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

### 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 gloves made of waterproof material such as neoprene, butyl rubber, barrier laminate or nitrile rubber.

#### Eye protection

Chemical resistant goggles must be worn.

#### Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks. Coveralls over short-sleeved shirt and short pants.

#### 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	beige to brown
Physical State	Liquid
Odor	aromatic
Odour Threshold	No data available
pH	ca. 5.4 at 10 % (23 °C) (deionized water)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	1.03 g/cm <sup>3</sup> at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	No data available
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable

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<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Viscosity</b>	15.7 mPa.s
<b>Flash point</b>	103 °C
<b>Auto-ignition temperature</b>	No data available
<b>Lower explosion limit</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Explosivity</b>	Not applicable

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### SECTION 10: STABILITY AND REACTIVITY

#### Reactivity

<b>Thermal decomposition</b>	Not applicable
<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>	Heat, flames and sparks.
<b>Incompatible materials</b>	No data available
<b>Hazardous decomposition products</b>	No decomposition products expected under normal conditions of use.

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### SECTION 11: TOXICOLOGICAL INFORMATION

<b>Exposure routes</b>	Eye contact, Skin Absorption, Ingestion, Inhalation
<b>Immediate Effects</b>	
<b>Eye</b>	Corrosive - causes irreversible eye damage.
<b>Skin</b>	Causes skin irritation. Harmful if absorbed through skin.
<b>Ingestion</b>	Harmful if swallowed.
<b>Information on toxicological effects</b>	
<b>Acute oral toxicity</b>	LD50 (female Rat) > 2,000 mg/kg
<b>Acute inhalation toxicity</b>	LC50 (Rat) > 2.1 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
<b>Acute dermal toxicity</b>	LD50 (Rat) > 2,000 mg/kg
<b>Skin irritation</b>	Moderate skin irritation. (Rabbit)



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**Eye irritation** Severe eye irritation. (Rabbit)

**Sensitisation** Non-sensitizing. (Guinea pig)

### Assessment STOT Specific target organ toxicity – repeated exposure

Fenoxaprop-P-ethyl did not cause specific target organ toxicity in rats. Fenoxaprop-P-ethyl caused specific target organ toxicity in experimental animal studies in mice in the following organ(s): Kidney. Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

### Assessment mutagenicity

Fenoxaprop-P-ethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests. Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

### Assessment carcinogenicity

Fenoxaprop-P-ethyl demonstrated no carcinogenic potential in a lifetime feeding study in rats. Fenoxaprop-P-ethyl caused an increased incidence of liver tumours in mice at high doses. Fenoxaprop-P-ethyl causes tumours through peroxisome proliferation. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans. Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

### ACGIH

Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	Group A3
Naphthalene	91-20-3	Group A3

### NTP

Naphthalene	91-20-3
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### IARC

Naphthalene	91-20-3	Overall evaluation: 2B
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### OSHA

None.

### Assessment toxicity to reproduction

Fenoxaprop-P-ethyl did not cause reproductive toxicity in a two-generation study in rats. Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.

### Assessment developmental toxicity

Fenoxaprop-P-ethyl did not cause developmental toxicity in rats and rabbits. Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.

### Further information

Only acute toxicity studies have been performed on the formulated product. 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)) 0.39 mg/l

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	Exposure time: 96 h The value mentioned relates to the active ingredient fenoxaprop-P-ethyl.
<b>Toxicity to aquatic invertebrates</b>	EC50 (Daphnia magna (Water flea)) > 1.058 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient fenoxaprop-P-ethyl. No acute toxicity was observed at its limit of water solubility.
<b>Toxicity to aquatic plants</b>	EC50 (Raphidocelis subcapitata (freshwater green alga)) 0.54 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient fenoxaprop-P-ethyl.
<b>Biodegradability</b>	Fenoxaprop-P-ethyl: Not rapidly biodegradable Mefenpyr-diethyl: Not rapidly biodegradable
<b>Koc</b>	Fenoxaprop-P-ethyl: Koc: 11354 Mefenpyr-diethyl: Koc: 625
<b>Bioaccumulation</b>	Fenoxaprop-P-ethyl: Bioconcentration factor (BCF) 338 Does not bioaccumulate. Mefenpyr-diethyl: Bioconcentration factor (BCF) 232 Does not bioaccumulate.
<b>Mobility in soil</b>	Fenoxaprop-P-ethyl: Immobile in soil Mefenpyr-diethyl: Slightly 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 or runoff from treated areas may adversely affect non-target plants. 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. Follow advice on product label and/or leaflet.
<b>Contaminated packaging</b>	Do not re-use empty containers. Triple rinse containers. Follow advice on product label and/or leaflet.

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### SECTION 14: TRANSPORT INFORMATION

#### TDG

UN number	3082
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Packaging group III  
Marine pollutant Marine pollutant  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(FENOXAPROP-P-ETHYL)

### 49CFR

UN number **3082**  
Class 9  
Packaging group III  
Marine pollutant Marine pollutant  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID,  
N.O.S.  
(FENOXAPROP-P-ETHYL, NAPHTHALENE)  
RQ Reportable Quantity is reached with 1,176 lb of product.

### IMDG

UN number **3082**  
Class 9  
Packaging group III  
Marine pollutant YES  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(FENOXAPROP-P-ETHYL SOLUTION)

### IATA

UN number **3082**  
Class 9  
Packaging group III  
Environm. Hazardous Mark YES  
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(FENOXAPROP-P-ETHYL SOLUTION )

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1. This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

## SECTION 15: REGULATORY INFORMATION

PCP Registration No. 29615

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### US Federal Regulations

#### TSCA list

None.

#### 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

None.

#### SARA Title III - Section 313 - Toxic Chemical Release Reporting

Naphthalene	91-20-3	0.1%
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#### US States Regulatory Reporting

##### CA Prop65

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

Naphthalene	91-20-3
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### US State Right-To-Know Ingredients

2-Methylpropan-1-ol	78-83-1	CA, CT, IL, MN, NJ, RI
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	CA, CT, MN, NJ, RI
Naphthalene	91-20-3	CA, CT, IL, MN, NJ, RI

### Canadian Regulations

#### Canadian Domestic Substance List

Benzenesulfonic acid, 4-C10-14-alkyl derivs., calcium salts	90194-26-6
2-Methylpropan-1-ol	78-83-1
Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5
Naphthalene	91-20-3

### Environmental

#### CERCLA

2-Methylpropan-1-ol	78-83-1
Naphthalene	91-20-3

#### Clean Water Section 307 Priority Pollutants

Naphthalene	91-20-3
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#### Safe Drinking Water Act Maximum Contaminant Levels

Naphthalene	91-20-3
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## SECTION 16: OTHER INFORMATION

### Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

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EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

### NFPA 704 (National Fire Protection Association):

Health - 2      Flammability - 1      Instability - 0      Others - none

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

Health - 2      Flammability - 1      Physical Hazard - 0      PPE -

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

**Reason for Revision:** Revised according to the current Canadian WHMIS standard (WHMIS 2015).

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

**Revision Date:** 06/12/2017

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