

# SAFETY DATA SHEET



## REVOLVER® HERBICIDE

Version 3.0 / USA  
102000022418

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Revision Date: 05/10/2019  
Print Date: 05/11/2019

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

#### Product identifier

Trade name REVOLVER® HERBICIDE

Product code (UVP) 79644205, 86252163

SDS Number 102000022418

EPA Registration No. 432-1266

#### 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 Environmental Science  
2 T.W. Alexander Drive  
Research Triangle PK, NC 27709  
USA

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 1-800-331-2867

### SECTION 2: HAZARDS IDENTIFICATION

#### Classification in accordance with regulation HCS 29CFR §1910.1200

Skin sensitisation: Category 1

Skin irritation: Category 2

Aspiration hazard: Category 1

#### Labelling in accordance with regulation HCS 29CFR §1910.1200



Signal word: Danger

#### Hazard statements

Causes skin irritation.

May cause an allergic skin reaction.

May be fatal if swallowed and enters airways.

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### Precautionary statements

Wash thoroughly after handling.  
Wear protective gloves.  
Avoid breathing mist/ spray.  
Contaminated work clothing should not be allowed out of the workplace.  
IF ON SKIN: Wash with plenty of water/ soap.  
If skin irritation or rash occurs: Get medical advice/ attention.  
IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician.  
Specific treatment (see supplemental first aid instructions on this label).  
Take off contaminated clothing and wash before reuse.  
Do NOT induce vomiting.  
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
Foramsulfuron	173159-57-4	2.34
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	34.76
Calcium dodecylbenzenesulfonate, branched	70528-83-5	1.8
1-Octanol	111-87-5	1.2
Naphthalene	91-20-3	0.35

## 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.

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**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** To date no symptoms are known.

### Indication of any immediate medical attention and special treatment needed

**Risks** Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.

**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** Water spray, Carbon dioxide (CO<sub>2</sub>), Foam, Sand

**Unsuitable** High volume water jet

**Special hazards arising from the substance or mixture** In the event of fire the following may be released: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NO<sub>x</sub>), Sulphur dioxide (SO<sub>2</sub>), 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** 128 °C

**Auto-ignition temperature** No data available

**Lower explosion limit** No data available

**Upper explosion limit** No data available

**Explosivity** Not applicable

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### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

**Precautions** Isolate hazard area. Keep unauthorized people away. 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). Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.

**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.

### SECTION 7: HANDLING AND STORAGE

#### Precautions for safe handling

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

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

#### 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.

**Advice on common storage** Keep away from food, drink and animal feedingstuffs.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Foramsulfuron	173159-57-4	10 mg/m <sup>3</sup>		OES BCS*

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		(TWA)		
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene  (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	03 2014	ACGIH
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (REL)	2010	NIOSH
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	100 mg/m3 (REL)	2010	NIOSH
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (PEL)	02 2006	OSHA Z1
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (TWA)	1989	OSHA Z1A
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (TWA)	06 2008	TN OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,600 mg/m3/400 ppm (TWA PEL)	08 2010	US CA OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,350 mg/m3/300 ppm (TWA PEL)	09 2013	US CA OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,800 mg/m3/400 ppm (STEL)	09 2013	US CA OEL
1-Octanol	111-87-5	265 mg/m3/50 ppm (TWA)	2010	WEEL
Naphthalene	91-20-3	10 ppm (TWA)	02 2012	ACGIH
Naphthalene	91-20-3	50 mg/m3/10 ppm (REL)	2010	NIOSH
Naphthalene	91-20-3	75 mg/m3/15 ppm (STEL)	2010	NIOSH
Naphthalene	91-20-3	50 mg/m3/10 ppm (PEL)	02 2006	OSHA Z1
Naphthalene	91-20-3	75 mg/m3/15 ppm	06 2008	TN OEL

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		(STEL)		
Naphthalene	91-20-3	50 mg/m <sup>3</sup> /10 ppm (TWA)	06 2008	TN OEL
Naphthalene	91-20-3	0.5 mg/m <sup>3</sup> /0.1 ppm (TWA PEL)	10 2014	US CA OEL
Naphthalene	91-20-3	10 ppm (TLV)		OES BCS*

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

### Biological occupational exposure limits

Components	CAS-No.	Parameters	Biological specimen	Sampling time	Conc.	Basis
Naphthalene	91-20-3	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis		Sampling time: End of shift.		ACGI H BEI

### 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

Tightly fitting safety goggles

#### 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	beige
Physical State	Liquid
Odor	aromatic
Odour Threshold	No data available
pH	5.0 - 7.0 (10 %) (23 °C) (deionized water)
Vapor Pressure	No data available

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<b>Vapor Density (Air = 1)</b>	No data available
<b>Density</b>	ca. 0.96 g/cm <sup>3</sup> (20 °C)
<b>Evaporation rate</b>	No data available
<b>Boiling Point</b>	No data available
<b>Melting / Freezing Point</b>	No data available
<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>	No data available
<b>Viscosity</b>	25 - 100 mPa.s ( 20 °C) Velocity gradient 20 /s 20 - 60 mPa.s ( 20 °C) Velocity gradient 100 /s
<b>Flash point</b>	128 °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
<b>Other information</b>	Further safety related physical-chemical data are not known.

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### SECTION 10: STABILITY AND REACTIVITY

#### Reactivity

<b>Thermal decomposition</b>	No data available
<b>Chemical stability</b>	Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No hazardous reactions when stored and handled according to prescribed instructions.
<b>Conditions to avoid</b>	No data available
<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 contact, Ingestion, Inhalation
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### Immediate Effects

<b>Eye</b>	Moderate eye irritation.
<b>Skin</b>	Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. May cause skin irritation.
<b>Ingestion</b>	May be harmful if swallowed.

### Information on toxicological effects

<b>Acute oral toxicity</b>	LD50 (Rat) > 5,000 mg/kg
<b>Acute inhalation toxicity</b>	LC50 (Rat) > 5.25 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
<b>Acute dermal toxicity</b>	LD50 (Rat) > 5,000 mg/kg
<b>Skin corrosion/irritation</b>	Moderate skin irritation. (Rabbit)
<b>Serious eye damage/eye irritation</b>	Slight irritant effect - does not require labelling. (Rabbit)
<b>Respiratory or skin sensitisation</b>	Skin: Sensitising (Guinea pig) OECD Test Guideline 406, Buehler test

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

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

### Assessment mutagenicity

Foramsulfuron was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

### Assessment carcinogenicity

Foramsulfuron was not carcinogenic in lifetime feeding studies in rats and mice.

### ACGIH

Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	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

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

### Assessment developmental toxicity

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Foramsulfuron 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

<b>Toxicity to aquatic invertebrates</b>	EC50 (Daphnia magna (Water flea)) 6.9 mg/l Exposure time: 48 h
<b>Toxicity to aquatic plants</b>	EC50 (Raphidocelis subcapitata (freshwater green alga)) > 5 mg/l Growth rate; Exposure time: 96 h EC50 (Lemna gibba (gibbous duckweed)) 0.75 µg/l Growth rate; Exposure time: 7 d
<b>Biodegradability</b>	Foramsulfuron: Not rapidly biodegradable
<b>Koc</b>	Foramsulfuron: Koc: 38 - 151
<b>Bioaccumulation</b>	Foramsulfuron: Does not bioaccumulate.
<b>Mobility in soil</b>	Foramsulfuron: Mobile in soils
<b>Additional ecological information</b>	The ecological data refer to a similar formulation. No other effects to be mentioned.
<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. Do not apply when weather conditions favor runoff or drift. 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. Never place unused product down any indoor or outdoor drain.
<b>Contaminated packaging</b>	Do not re-use empty containers. Triple rinse containers.

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Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities. If burned, stay out of smoke. 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.

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## SECTION 14: TRANSPORT INFORMATION

### 49CFR

UN number	<b>3082</b>
Class	9
Packaging group	III
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (NAPHTHALENE)
RQ	Reportable Quantity is reached with 28,571 lb of product.

### IMDG

UN number	<b>3082</b>
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKYL (C3-C6) BENZENE SOLUTION)

### IATA

UN number	<b>3082</b>
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKYL (C3-C6) BENZENE 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.

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## SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-1266

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### US Federal Regulations

#### TSCA list

Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene 64742-94-5  
Calcium dodecylbenzenesulfonate, branched 70528-83-5  
1-Octanol 111-87-5

#### US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Not applicable.

#### SARA Title III - Section 302 - Notification and Information

None.

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

None.

#### US States Regulatory Reporting

##### CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

#### US State Right-To-Know Ingredients

Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	CT, NJ, RI
1-Octanol	111-87-5	CT, MN, RI

#### EPA/FIFRA Information:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

**Signal word:** Caution!

**Hazard statements:** Moderate eye irritation.  
Avoid contact with skin, eyes and clothing.  
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

## 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
EINECS	European inventory of existing commercial substances

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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 - 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:** The following sections have been revised: Section 2: Hazards Identification.  
Reviewed and updated for general editorial purposes.

**Revision Date:** 05/10/2019

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