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

Product identifier

Trade name	PROGRASS® HERBICIDE
Product code (UVP)	86808307
SDS Number	102000053434
EPA Registration No.	432-941

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 A division of Bayer CropScience LP 5000 Centregreen Way, Suite 400 Cary, NC 27513 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
Flammable liquids: Category 3
Serious eye damage, Aspiration hazard: Category 1
Carcinogenicity: Category 2
Specific target organ toxicity - single exposure: Category 3

Labelling in accordance with regulation HCS 29CFR §1910.1200

Signal word: Danger

Hazard statements
Flammable liquid and vapour.
Suspected of causing cancer.
May cause respiratory irritation.
May be fatal if swallowed and enters airways.
Causes serious eye damage.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protect
Avoid breathing mist/ vapours/ spray.
Use only outdoors or in a well-ventilated area.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
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 (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
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
Ethofumesate	26225-79-6	19.0
Hydrocarbons, C9, aromatics	64742-95-6	59.91
Cyclohexanone	108-94-1	15.0
Branched calcium dodecyl benzene sulfonate	68953-96-8	1.17
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	1.13
Naphthalene	91-20-3	0.15

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. Do not give liquids 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.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Carbon dioxide (CO2), Foam, Sand, Dry chemical
Unsuitable	High volume water jet
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	Fight fire from upwind position. Keep out of smoke. Cool closed containers exposed to fire with water spray. Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	44.5 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Remove all sources of ignition. 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. No sparking tools should be used. 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.

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.
Advice on protection against fire and explosion	Keep away from heat and sources of ignition. Take measures to prevent the build up of electrostatic charge. Vapours may form explosive mixture with air. Use only explosion-proof equipment.
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. 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.

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
Ethofumesate	26225-79-6	10 mg/m3 (TWA)		OES BCS*
Cyclohexanone	108-94-1	20 ppm (TWA)	02 2012	ACGIH
Cyclohexanone	108-94-1	50 ppm (STEL)	02 2012	ACGIH
Cyclohexanone	108-94-1	100 mg/m3/25 ppm (REL)	2010	NIOSH
Cyclohexanone	108-94-1	200 mg/m3/50 ppm (PEL)	02 2006	OSHA Z1
Cyclohexanone	108-94-1	100 mg/m3/25 ppm (TWA)	1989	OSHA Z1A
Cyclohexanone	108-94-1	100 mg/m3/25 ppm (TWA)	06 2008	TN OEL
Cyclohexanone	108-94-1	100 mg/m3/25 ppm (TWA PEL)	08 2010	US CA OEL
Solvent Naphtha (petroleum), heavy aromatic (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	03 2014	ACGIH
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	100 mg/m3 (REL)	2010	NIOSH
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	1,600 mg/m3/400 ppm (TWA PEL)	08 2010	US CA OEL
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	2010	NIOSH

		(STEL)		
Naphthalene	91-20-3	50 mg/m3/10 ppm (PEL)	02 2006	OSHA Z1
Naphthalene	91-20-3	50 mg/m3/10 ppm (TWA)	06 2008	TN OEL
Naphthalene	91-20-3	75 mg/m3/15 ppm (STEL)	01 2019	TN OEL
Naphthalene	91-20-3	0.5 mg/m3/0.1 ppm (TWA PEL)	10 2014	US CA OEL

*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
Cyclohexanone	108-94-1	1,2-Cyclohexanediol, with hydrolysis	Urine	Sampling time: End of shift at end of work week.	80 mg/l	ACGIH BEI
Cyclohexanone	108-94-1	Cyclohexanol, with hydrolysis	Urine	Sampling time: End of shift.	8 mg/l	ACGIH BEI
Naphthalene	91-20-3	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis		Sampling time: End of shift.		ACGIH 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 — Use tightly sealed goggles and face protection.

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

Information on basic physical and chemical properties

Form	clear, Liquid
Colour	yellow to brown
Odour	aromatic
Odour Threshold	No data available
pH	No data available
Melting point/range	No data available
Boiling Point	No data available
Flash point	44.5 °C
Flammability	No data available
Auto-ignition temperature	No data available
Minimum ignition energy	Not applicable
Self-accelarating decomposition temperature (SADT)	No data available
Upper explosion limit	No data available
Lower explosion limit	No data available
Vapour pressure	No data available
Evaporation rate	No data available
Relative vapour density	No data available
Relative density	No data available
Density	0.95 g/cm³ (20 °C)
Water solubility	soluble
Partition coefficient: n-octanol/water	Ethofumesate: log Pow: 2.7 (25 °C)
Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
Oxidizing properties	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight. Heat, flames and sparks.
Incompatible materials	No incompatible materials known.
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Skin contact, Ingestion, Eye contact, Inhalation
Immediate Effects	
Eye	Corrosive - causes irreversible eye damage.
Skin	May cause skin irritation.
Inhalation	Harmful if inhaled.

Information on toxicological effects

Acute oral toxicity	LD50 (Rat) > 5,660 mg/kg Test conducted with a similar formulation.
Acute inhalation toxicity	LC50 (male/female combined Rat) > 5.4 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Test conducted with a similar formulation.
Acute dermal toxicity	LD50 (Rat) > 4,000 mg/kg Test conducted with a similar formulation.
Skin corrosion/irritation	Slight irritant effect - does not require labelling. (Rabbit) Test conducted with a similar formulation.
Serious eye damage/eye irritation	Severe eye irritation. (Rabbit) Test conducted with a similar formulation.
Respiratory or skin sensitisation	Skin: Non-sensitizing. (Guinea pig) Test conducted with a similar formulation.

Assessment STOT Specific target organ toxicity – single exposure

Ethofumesate: Based on available data, the classification criteria are not met.
Cyclohexanone: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

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

Assessment mutagenicity

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

Assessment carcinogenicity

Ethofumesate was not carcinogenic in lifetime feeding studies in rats and mice.
Cyclohexanone is not considered carcinogenic.

ACGIH

Cyclohexanone	108-94-1	Group A3
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	Group A3
Naphthalene	91-20-3	Group A3

NTP

Naphthalene	91-20-3

IARC

Cyclohexanone	108-94-1	Overall evaluation: 3
Naphthalene	91-20-3	Overall evaluation: 2B

OSHA

None.

Assessment toxicity to reproduction

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

Assessment developmental toxicity

Ethofumesate did not cause developmental toxicity in rats and rabbits.
Cyclohexanone did not cause developmental toxicity in rats and rabbits.

Aspiration hazard

May be fatal if swallowed and enters airways.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Danio rerio (Zebra fish)) 45 mg/l Exposure time: 96 h Test conducted with a similar formulation.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 93.2 mg/l Exposure time: 48 h Test conducted with a similar formulation.

Toxicity to aquatic plants	IC50 (Desmodesmus subspicatus (green algae)) 3.9 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient ethofumesate.
	EC50 (Lemna minor (common duckweed)) 50.4 mg/l Biomass; Exposure time: 336 h The value mentioned relates to the active ingredient ethofumesate.
	EC50 (Lemna minor (common duckweed)) > 52.8 mg/l Growth rate; Exposure time: 336 h The value mentioned relates to the active ingredient ethofumesate.
Biodegradability	Ethofumesate: Not rapidly biodegradable
Koc	Ethofumesate: Koc: 147
Bioaccumulation	Ethofumesate: Bioconcentration factor (BCF) 144 Does not bioaccumulate.
Mobility in soil	Ethofumesate: Moderately mobile in soils

Results of PBT and vPvB assessment

PBT and vPvB assessment	Ethofumesate: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	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

49CFR

UN number	**1993**
Class	3
Packaging group	III
Proper shipping name	FLAMMABLE LIQUIDS, N.O.S. (HYDROCARBONS, C9, AROMATICS, CYCLOHEXANONE)
RQ	Reportable Quantity is reached with 33,333 lb of product.

IMDG

UN number	**1993**
Class	3
Packaging group	III
Marine pollutant	YES
Proper shipping name	FLAMMABLE LIQUID, N.O.S. (HYDROCARBONS, C9, AROMATICS)

IATA

UN number	**1993**
Class	3
Packaging group	III
Environm. Hazardous Mark	NO
Proper shipping name	FLAMMABLE LIQUID, N.O.S. (HYDROCARBONS, C9, AROMATICS)

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.

Freight Classification:	COMPOUNDS, TREE OR WEED KILLING, N.O.I. other than poison, HAVING A DENSITY OF 20 LBS OR GREATER PER CUBIC FOOT

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-941
US Federal Regulations
TSCA list

Cyclohexanone	108-94-1
Branched calcium dodecyl benzene sulfonate	68953-96-8
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No export notification needs to be made.
SARA Title III - Section 302 - Notification and Information
Not applicable.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
WARNING: This product contains a chemical known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Naphthalene	91-20-3

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

US State Right-To-Know Ingredients

Cyclohexanone	108-94-1	CA, CT, IL, MN, NJ, RI
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	CT, NJ, RI

Environmental
CERCLA
Yes

Cyclohexanone	108-94-1

Listed
Clean Water Section 307(a)(1)
Yes

Naphthalene	91-20-3

Safe Drinking Water Act Maximum Contaminant Levels
Yes

Naphthalene	91-20-3

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: Danger!

Hazard statements: Corrosive - causes irreversible eye damage.
Harmful if swallowed.
Causes skin irritation.

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
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 - 3	Flammability - 2	Instability - 0	Others - none

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

Health - 3	Flammability - 2	Physical Hazard - 1	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 14: Transport Information. Section 15: Regulatory information. Reviewed and updated for general editorial purposes.

Revision Date: 10/06/2020