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

1.1 Product identifier

Trade name TOTRIL EC225 4X5L BOT UA

Product code (UVP) 06455530

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

Use Herbicide

1.3 Details of the supplier of the safety data sheet

Supplier
Bayer AG
Kaiser-Wilhelm-Allee 1
51373 Leverkusen
Germany

Telefax +49(0)2173-38-7394

Responsible Department
Substance Classification & Registration
+49(0)2173-38-3409 (during business hours only)
Email: BCS-SDS@bayer.com

1.4 Emergency telephone no.

Emergency telephone no.
Global Incident Response Hotline (24h)
+1 (760) 476-3964 (Company 3E for Bayer AG, Crop Science Division)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Flammable liquids: Category 3
H226 Flammable liquid and vapour.

Acute toxicity: Category 4
H302 Harmful if swallowed.

Aspiration hazard: Category 1
H304 May be fatal if swallowed and enters airways.

Skin sensitisation: Category 1
H317 May cause an allergic skin reaction.

Eye irritation: Category 2
H319 Causes serious eye irritation.

Specific target organ toxicity - single exposure: Category 3
H335 May cause respiratory irritation.

Specific target organ toxicity - single exposure: Category 3
H336 May cause drowsiness or dizziness.

Reproductive toxicity: Category 2
H361d Suspected of damaging the unborn child.

Acute aquatic toxicity: Category 1
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1
H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Hazard label for supply/use required.

Hazardous components which must be listed on the label:

- Ioxynil
- Solvent Naphtha (petroleum), light aromatic

Signal word: Danger

Hazard statements

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H410	Very toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.
EUH401	To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/ doctor/ physician.
P501	Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature

Emulsifiable concentrate (EC)
Ioxynil 225 g/l

Hazardous components

Hazard statements according to Regulation (EC) No. 1272/2008

Name	CAS-No. / EC-No. / REACH Reg. No.	Classification Regulation (EC) No 1272/2008	Conc. [%]
Ioxynil octanoate	3861-47-0 223-375-4	Acute Tox. 3, H301 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Repr. 2, H361d	28,70
Dodecyl benzene sulphonate, calcium salt	26264-06-2 247-557-8	Skin Irrit. 2, H315 Eye Dam. 1, H318	> 1,00 – < 5,00
2-Methylpropan-1-ol	78-83-1 201-148-0	Flam. Liq. 3, H226 STOT SE 3, H335 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H336	> 1,00 – < 5,00
Solvent Naphtha (petroleum), light aromatic	64742-95-6 265-199-0 01-2119486773-24-xxxx	Flam. Liq. 3, H226 STOT SE 3, H336 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	> 20,00

Further information

Ioxynil octanoate	3861-47-0	M-Factor: 10 (acute), 10 (chronic)

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice Remove contaminated clothing immediately and dispose of safely.

Inhalation Move the victim to fresh air and keep at rest. Call a physician or poison control center immediately.

Skin contact Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. Call a physician or poison control center immediately.

Eye contact Wash off immediately with plenty of water for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion Rinse out mouth and give water in small sips to drink. Do NOT induce vomiting. Keep patient warm and at rest. Risk of product entering the lungs on vomiting after ingestion. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	Local:, Sensitisation, The product causes irritation of eyes, skin and mucous membranes.
	Systemic:, Tiredness, Thirst, sweating, Anxiety, Hyperventilation, Tachycardia, Muscle rigidity, Hyperthermia

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	Local treatment: Initial treatment: symptomatic.
	Systemic treatment: Initial treatment: symptomatic. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. In case of hyperthermia physical cooling is advisable; in case of muscle rigidity muscle relaxants and mechanical ventilation may support in counteracting hyperthermia. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable	High volume water jet
5.2 Special hazards arising from the substance or mixture	Dangerous gases are evolved in the event of a fire.

5.3 Advice for firefighters

Special protective equipment for firefighters	In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
Further information	Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions	Keep people away from and upwind of spill/leak. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke.
6.2 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. Do not apply when weather conditions favor runoff or drift. Apply this product as specified on the label.

6.3 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). Keep in suitable, closed containers for disposal. Clean floors and contaminated objects with plenty of water.
Additional advice	Check also for any local site procedures.
6.4 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

7.1 Precautions for safe handling

Advice on safe handling	No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.
Advice on protection against fire and explosion	Keep away from heat and sources of ignition. Vapours may form explosive mixture with air. Take measures to prevent the build up of electrostatic charge. Use only explosion-proof equipment.
Hygiene measures	When using, do not eat, drink or smoke. Remove soiled clothing immediately and clean thoroughly before using again. Contaminated work clothing should not be allowed out of the workplace. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Wash hands immediately after work, if necessary take a shower.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in a place accessible by authorized persons only. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from freezing. Keep away from direct sunlight.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.
Suitable materials	Coex EVOH (1000L IBC)
7.3 Specific end use(s)	Refer to the label and/or leaflet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Ioxynil octanoate	3861-47-0	0,21 mg/m3 (SK-SEN)		OES BCS*

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

Additional advice
Observe: Exposure Limits In Air, Group 3: 100 mg/m³/ 20 ppm. (aromatic-rich hydrocarbon mixes with >

25% aromatics TRGS 901, No. 72).

8.2 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	Wear respirator with an organic vapours and gas filter mask (protection factor 10) conforming to EN140 type A or equivalent. Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.
Hand protection	Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.

Material	Nitrile rubber
Rate of permeability	> 480 min
Glove thickness	> 0,4 mm
Protective index	Class 6
Directive	Protective gloves complying with EN 374.

Eye protection	Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).
Skin and body protection	Wear standard coveralls and Category 3 Type 4 suit. If there is a risk of significant exposure, consider a higher protective type suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently. If chemical protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	liquid, clear
Colour	brown
Odour	aromatic
Flash point	49 °C
Ignition temperature	515 °C
Upper explosion limit	7,00 %(V)

	The data refer to solvent naphtha petroleum.
Lower explosion limit	0,8 %(V) The data refer to solvent naphtha petroleum.
Relative vapour density	1,00 The data refer to solvent naphtha petroleum.
Density	ca. 1,06 g/cm³ at 20 °C
Water solubility	miscible
Partition coefficient: n-octanol/water	Ioxynil octanoate: log Pow: 6,0
Viscosity, dynamic	3.859 mPa×s at 20 °C
Viscosity, kinematic	2,35 mm2/s at 40 °C
Surface tension	30,2 mN/m at 25 °C Determined in the undiluted form.
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113
9.2 Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Thermal decomposition	Stable under normal conditions.
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
10.4 Conditions to avoid	Extremes of temperature and direct sunlight.
10.5 Incompatible materials	Store only in the original container.
10.6 Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity	LD50 (Rat) 568 mg/kg Test conducted with a similar formulation.
Acute inhalation toxicity	LC50 (Rat) 13,0 mg/l Exposure time: 6 h Irritating to respiratory system. Test conducted with a similar formulation.
Acute dermal toxicity	LD50 (Rat) > 2.000 mg/kg

	Test conducted with a similar formulation.
Skin irritation	No skin irritation (Rabbit)
Eye irritation	Irritating to eyes. (Rabbit) Test conducted with a similar formulation.
Sensitisation	Sensitising (Guinea pig) OECD Test Guideline 406, Buehler test Test conducted with a similar formulation.

Assessment repeated dose toxicity

Ioxynil octanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): Blood, Liver. The observed effects do not appear to be relevant for humans.

Assessment mutagenicity

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

Assessment carcinogenicity

Ioxynil octanoate caused at high dose levels an increased incidence of tumours in the following organ(s): Thyroid, Liver. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.

Assessment toxicity to reproduction

Ioxynil octanoate was not a reproductive toxicant at non-maternally toxic dose levels in a two-generation study in rats. Ioxynil octanoate caused a reduced litter size and a reduced pup weight. The reproduction toxicity seen with Ioxynil octanoate is related to parental toxicity.

Assessment developmental toxicity

Ioxynil octanoate caused developmental toxicity only at dose levels toxic to the dams. Ioxynil octanoate caused a delayed ossification of foetuses. The developmental effects seen with Ioxynil octanoate are related to maternal toxicity.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 0,882 mg/l Exposure time: 96 h
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 0,1468 mg/l Exposure time: 48 h
Toxicity to aquatic plants	EC50 (Navicula pelliculosa (Freshwater diatom)) > 0,93 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient ioxynil-octanoate. EC50 (Navicula pelliculosa (Freshwater diatom)) 0,24 mg/l Biomass; Exposure time: 72 h The value mentioned relates to the active ingredient ioxynil-octanoate. EC50 (Lemna gibba (gibbous duckweed)) 0,017 mg/l Exposure time: 336 h The value mentioned relates to the active ingredient ioxynil-octanoate.

12.2 Persistence and degradability

Biodegradability	Ioxynil octanoate: Not rapidly biodegradable
Koc	Ioxynil octanoate: Koc: 289

12.3 Bioaccumulative potential

Bioaccumulation	Ioxynil octanoate: Bioconcentration factor (BCF) 188 Does not bioaccumulate.

12.4 Mobility in soil

Mobility in soil	Ioxynil octanoate: Moderately mobile in soils

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment	Ioxynil octanoate: 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).

12.6 Other adverse effects

Additional ecological information	No other effects to be mentioned.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.
Contaminated packaging	Triple rinse containers. Do not re-use empty containers. Not completely emptied packagings should be disposed of as hazardous waste.
Waste key for the unused product	**02 01 08*** agrochemical waste containing dangerous substances

SECTION 14: TRANSPORT INFORMATION

ADR/RID/ADN

14.1 UN number	**1993**
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (IOXYNIL OCTANOATE, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Hazard no.	30
Tunnel Code	D/E
Special Provision	640E

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

IMDG

14.1 UN number	**1993**
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (IOXYNIL OCTANOATE, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Marine pollutant	YES

IATA

14.1 UN number	**1993**
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (IOXYNIL OCTANOATE, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environm. Hazardous Mark	NO

14.6 Special precautions for user
See sections 6 to 8 of this Safety Data Sheet.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
No transport in bulk according to the IBC Code.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Further information

WHO-classification: II (Moderately hazardous)

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

SECTION 16: OTHER INFORMATION

Text of the hazard statements mentioned in Section 3

H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
Conc.	Concentration
EC-No.	European community number
ECx	Effective concentration to x %
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods
LCx	Lethal concentration to x %
LDx	Lethal dose to x %
LOEC/LOEL	Lowest observed effect concentration/level
MARPOL	MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.	Not otherwise specified
NOEC/NOEL	No observed effect concentration/level
OECD	Organization for Economic Co-operation and Development
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

The information contained within this Safety Data Sheet is in accordance with the guidelines established by Regulation (EU) 1907/2006 and Regulation (EU) 2015/830 amending Regulation (EU) No 1907/2006 and any subsequent amendments. This data sheet complements the user's instructions, but does not replace them. The information it contains is based on the knowledge available about the product concerned at the time it was compiled. Users are further reminded of the possible risks of using a product for purposes other than those for which it was intended. The required information complies with current EEC legislation. Addressees are requested to observe any additional national requirements.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.