

Version 4 / EU 102000011507 **1/11** Revision Date: 19.04.2016 Print Date: 14.11.2017

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

1.1 Product identifier	
Trade name	PUMA SUPER EW144 2X10L BOT UA
Product code (UVP)	06471331
1.2 Relevant identified uses o	f the substance or mixture and uses advised against
Use	Herbicide
1.3 Details of the supplier of t	he 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.

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

Chronic aquatic toxicity: Category 2 H411 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:

- Fenoxaprop-P-ethyl
- Mefenpyr-diethyl
- Solvent Naphtha (petroleum), heavy aromatic





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Signal word: Warning

Hazard statements

 H317 May cause an allergic skin reaction. H411 Toxic to aquatic life with long lasting effect EUH066 Repeated exposure may cause skin dryne EUH401 To avoid risks to human health and the en use. 	
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Precautionary statements

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
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

Emulsion, oil in water (EW) Fenoxaprop-P-ethyl/Mefenpyr-diethyl 69:75 g/l

Hazardous components

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

Name	CAS-No. /	Classification	Conc. [%]
	EC-No. / REACH Reg. No.	Regulation (EC) No 1272/2008	
Fenoxaprop-P-ethyl	71283-80-2	Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	6,57
Mefenpyr-diethyl	135590-91-9	Aquatic Chronic 2, H411	7,14
Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9	Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Chronic 3, H412	> 10 - < 25
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5 265-198-5 01-2119451097-39-xxxx	Asp. Tox. 1, H304 Aquatic Chronic 2, H411	> 25
Mixture of: 5-chloro-2- methyl-4-isothiazolin-3- one and 2-methyl-4- isothiazolin-3-one	55965-84-9	Acute Tox. 3, H331 Acute Tox. 3, H311 Acute Tox. 3, H301 Skin Sens. 1, H317 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	> 0,0015 - < 0,06
Glycerine	56-81-5 200-289-5	Not classified	> 1



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Further information

Fenoxaprop-P- 71283-8 ethyl	M-Factor: 1 (acute), 1 (chronic)
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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	Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.	
Inhalation	Move to fresh air. Keep patient warm and 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. If symptoms persist, call a physician.	
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.	
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately. Risk of product entering the lungs on vomiting after ingestion. Rinse mouth.	
4.2 Most important symptoms	s and effects, both acute and delayed	
Symptoms	If large amounts are ingested, the following symptoms may occur:	
	Headache, Nausea, Dizziness, Somnolence	
	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.	
	Aspiration may cause pulmonary oedema and pneumonitis.	
	Inhalation may provoke the following symptoms:	
	Cough, Shortness of breath, Cyanosis, Fever	
	Symptoms and hazards refer to the solvent.	
4.3 Indication of any immedia	te medical attention and special treatment needed	
Risks	Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.	
Treatment	Treat symptomatically. Gastric lavage is not normally required. However, if a significant amount (more than a mouthful) has been ingested, administer activated charcoal and sodium sulphate. In case of aspiration intubation and bronchial lavage should be considered. Monitor: kidney, liver and pancreas function. There is no specific antidote. Contraindication: derivatives of adrenaline.	



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SECTION 5: FIREFIGHTING MEASURES

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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	In the event of fire the following may be released:, Hydrogen chloride (HCI), Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Nitrogen oxides (NOx)
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	Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, pro	tective equipment and emergency procedures
Precautions	Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.
6.2 Environmental precautions	Do not allow to get into surface water, drains and ground water.
6.3 Methods and materials for	r 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.
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	Use only in area provided with appropriate exhaust ventilation. For personal protection see section 8.
Hygiene measures	Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands before breaks and immediately after handling the product. Wash hands immediately after work, if necessary take a shower. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).



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7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only. Keep away from direct sunlight. Protect from frost.
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
Fenoxaprop-P-ethyl	71283-80-2	2,6 mg/m3 (TWA)		OES BCS*
Mefenpyr-diethyl	135590-91-9	10 mg/m3 (TWA)		OES BCS*

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

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**Respiratory protection is not required under anticipated

Respiratory protection	short duration activities, whe been taken to reduce expos	Id only be used to control residual risk of en all reasonably practicable steps have sure at source e.g. containment and/or rays follow respirator manufacturer's
Hand protection	breakthrough time which are Also take into consideration the product is used, such as contact time. Wash gloves when contami inside, when perforated or v	ions regarding permeability and e provided by the supplier of the gloves. the specific local conditions under which s the danger of cuts, abrasion, and the nated. Dispose of when contaminated when contamination on the outside cannot requently and always before eating, he toilet. Nitrile rubber > 480 min > 0,4 mm Class 6 Protective gloves complying with EN 374.
Eye protection	Wear goggles (conforming t	to EN166, Field of Use = 5 or equivalent).
Skin and body protection	Wear standard coveralls an	d Category 3 Type 4 suit.



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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.

General protective measures If product is handled while not enclosed, and if contact may occur: Complete suit protecting against chemicals

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	Liquid
Colour	white to beige
Odour	musty
рН	7,6 - 8,5 at 10 % (23 °C) (deionized water)
Flash point	> 100 °C
Auto-ignition temperature	435 °C
Vapour pressure	23,3 hPa at 20 °C
Density	ca. 1,05 g/cm³ at 20 °C
Water solubility	at 20 °C emulsifiable
Partition coefficient: n- octanol/water	Fenoxaprop-P-ethyl: log Pow: 4,58 at 30 °C
	Mefenpyr-diethyl: log Pow: 3,83 at 21 °C
Viscosity, kinematic	454 mm2/s at 40 °C Shear rate of 20/sec
Surface tension	31,6 mN/m at 25 °C Determined in the undiluted form.
Oxidizing properties	No oxidizing properties
Explosivity	Not explosive
9.2 Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	
Thermal decomposition	260 °C Test conducted with a similar formulation.
10.2 Chemical stability	Stable under recommended storage conditions.



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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) > 5.000 mg/kg Test conducted with a similar formulation.
Acute inhalation toxicity	LC50 (Rat) > 10,74 mg/l Exposure time: 4 h Test conducted with a similar formulation.
Acute dermal toxicity	LD50 (Rat) > 4.000 mg/kg Test conducted with a similar formulation.
Skin irritation	Slight irritant effect - does not require labelling. (Rabbit) Test conducted with a similar formulation.
Eye irritation	No eye irritation (Rabbit) Test conducted with a similar formulation.
Sensitisation	Non-sensitizing. (Guinea pig) OECD Test Guideline 406, Buehler test Test conducted with a similar formulation. Sensitising (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA) Test conducted with a similar formulation.

Assessment repeated dose toxicity

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.

Assessment toxicity to reproduction

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



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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.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	
Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 4,2 mg/l Exposure time: 96 h Test conducted with a similar formulation.
	LC50 (Cyprinus carpio (Carp)) 3,8 mg/l Exposure time: 96 h Test conducted with a similar formulation.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 7 mg/l Exposure time: 48 h Test conducted with a similar formulation.
Toxicity to aquatic plants	EC50 (Desmodesmus subspicatus (green algae)) 4,9 mg/l Exposure time: 72 h Test conducted with a similar formulation.
12.2 Persistence and degrad	ability
Biodegradability	Fenoxaprop-P-ethyl: Not rapidly biodegradable Mefenpyr-diethyl: Not rapidly biodegradable
Кос	Fenoxaprop-P-ethyl: Koc: 11354 Mefenpyr-diethyl: Koc: 625
12.3 Bioaccumulative potent	ial
Bioaccumulation	Fenoxaprop-P-ethyl: Bioconcentration factor (BCF) 338 Does not bioaccumulate. Mefenpyr-diethyl: Bioconcentration factor (BCF) 232 Does not bioaccumulate.
12.4 Mobility in soil	
Mobility in soil	Fenoxaprop-P-ethyl: Immobile in soil Mefenpyr-diethyl: Slightly mobile in soils
12.5 Results of PBT and vPv	B assessment
PBT and vPvB assessment	Fenoxaprop-P-ethyl: 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). Mefenpyr-diethyl: 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	



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Additional ecological	
information	

No other effects to be mentioned.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment method	ls
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	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 14.2 Proper shipping name	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Hazard no.	90
Tunnel Code	E

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

IMDG

IMDG	
14.1 UN number	3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Marine pollutant	YES
ΙΑΤΑ	
IATA 14.1 UN number	3082
	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
14.1 UN number	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
14.1 UN number	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
14.1 UN number 14.2 Proper shipping name 14.3 Transport hazard class(es)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION) 9
14.1 UN number 14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION)



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14.5 Environm. Hazardous Mark YES

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: III (Slightly hazardous)

15.2 Chemical Safety Assessment

A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

Text of the hazard statements mentioned in Section 3

H301	Toxic if swallowed.

- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H331 Toxic if inhaled.
- H373 May cause damage to organs through prolonged or repeated exposure.
- 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.
- H412 Harmful 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



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ΙΑΤΑ	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.

Reason for Revision:

Safety Data Sheet according to Regulation (EU) No. 2015/830. Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 8: Exposure Controls / Personal Protection. Section 16: Other Information.

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