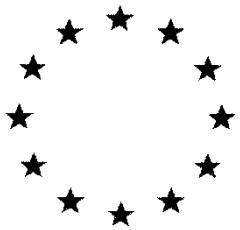
European Commission



Draft Renewal Assessment Report prepared according to the Commission Regulation (EU) N° 1107/2009

Fenoxaprop-P-ethyl

Volume 3 – B.4 (PPP) – CHA 4960

Rapporteur Member State: Austria
Co-Rapporteur Member State: Finland

Version History

When	What
2005/April	Initial DAR of the active substance. CHA 4960 was not the representative formulation
2018/March	DRAR

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B.4. FURTHER INFORMATION

B.4.1. SAFETY INTERVALS AND OTHER PRECAUTIONS TO PROTECT HUMANS, ANIMALS AND THE ENVIRONMENT

Pre-harvest interval (in days) for each relevant crop:
The pre-harvest interval is determined by the interval between application and harvest.

Re-entry period (in days) for livestock, to areas to be grazed:
CHA 4960 is not intended to be used in areas where livestock may be grazed.

Re-entry period (in hours or days) for man to crops, buildings or spaces treated:
There is no waiting period once spray has dried on crops.

Withholding period (in days) for animal feeding stuffs:
No withholding periods is required for animal feeding stuffs.

Waiting period (in days) between application and handling of treated products:
There is no waiting period once spray has dried on crops. There is no normal agricultural practice which will require re-entry after spraying.

Waiting period (in days) between last application and sowing or planting succeeding crops:
The waiting period between last application and sowing or planting of succeeding crops is determined by normal agricultural practice.

Information on specific conditions under which the preparation may or may not be used:
CHA 4960 should not be applied to crops under stress due to drought or water-logging.

B.4.2. RECOMMENDED METHODS AND PRECAUTIONS

FIREFIGHTING MEASURES

Extinguishing media	Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.
Special hazards arising from the substance or mixture	The essential breakdown products are: carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride and various organic chlorinated compounds.
Advice for firefighters	Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

HANDLING AND STORAGE

Precautions for safe handling

In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. Otherwise, the material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see Exposure Controls section below.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

Inhalation of vapours of the product can cause lowered consciousness, which increases the risks of operating machinery and driving.

Do not discharge to the environment. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste.

Conditions for safe storage, including any incompatibilities

No special precautions are required. Extreme heat is to be avoided. Protect against strong heat from sunshine or other source, e.g. fire.

Keep in closed, labeled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorized persons or children. A warning sign reading “POISON” is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

TRANSPORT INFORMATION

UN number

3082

UN proper shipping name

Environmentally hazardous substance, liquid, n.o.s. (fenoxaprop-P-ethyl and alkyl(C3-C6)benzenes)

Transport hazard class(es)

9

Packing group

III

Environmental hazards

Marine pollutant

Special precautions for user

Do not discharge to the environment.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code

The product is not transported in bulk tankers.

ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

It is recommended to have a predetermined plan for the handling of spills. Empty, sealable vessels for the collection of spills should be available.

In case of large spill (involving 10 tonnes of the product or more):

1. Use personal protection equipment; see MSDS for further information
2. Call emergency telephone no.; see MSDS for further information
3. Alert authorities.

Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and boots.

Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area. Remove sources of ignition. Avoid and reduce mist formation as much as possible.

Environmental precautions

Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

Methods and materials for containment and cleaning up

It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping.

If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with soda lye and much water. Absorb wash liquid with absorbent and transfer to suitable containers. The used containers should be properly closed and labelled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

EXPOSURE CONTROLS

When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.

Respiratory protection	The product does not automatically present an airborne exposure concern when handled carefully, but in the event of a discharge of the material which produces a heavy vapour or mist, workers should put on officially approved respiratory protection equipment with a universal filter type including particle filter.
Protective gloves	Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton. The breakthrough time of these materials for this product are unknown, but it is expected that they will give adequate protection.
Eye protection	Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.
Other skin protection	Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of appreciable or prolonged exposure, coveralls of barrier laminate may be required.

For further information please refer to MSDS of the product filed under KCA 4/01.

Procedures for cleaning application equipment and protective clothing
Residual quantities of spray solution in the spray tank should be diluted ten-fold and applied to the crop.
The cleaning procedure should be that conducted as standard practice in agriculture as published by GIFAP (GIFAP, 1987):

Protective clothing: Wash with water and detergent

Slightly contaminated clothing may be washed with usual detergent and several changes of water, separated from other clothing. Heavily contaminated articles and those which cannot be decontaminated, e.g., leather boots, together with rags, cotton waste, etc., which have been used for cleaning up spillages, must be burnt in a licensed incinerator. Clothes must be torn or cut up before being sent to the licensed incinerator.

Effectiveness of the cleaning procedures
CHA 4960 is not phytotoxic to cereal crops. Residues of CHA 4960 in the spray tank are not harmful as indicated in the following model calculation:
CHA 4960 is applied diluted in water, at least in 100 L/ha. Regarding subsequent use of the spraying equipment, any carryover would be insignificant according to the following calculation:
83 g active ingredient in 100 L water (worst case) would result in 0.83 g ai per litre as maximum concentration.
Any surplus spray mix is to be diluted at the radio 1:10 with water and to be sprayed onto the previously treated area, according to the use instructions. After that any remaining spray broth dilution would contain only 0.083 g ai per litre water.
If 5 L dilution should remain in the spraying equipment (an amount above usual, relative volumes), it would be diluted during the preparation of the next 100 L spray solution to a remaining ai concentration of 4.2 mg ai per litre, - only 0.51 % of the original ai concentration.

In order to support the theoretical discussions above, a tank cleaning study has been conducted for CHA 4960, summarised below:

Reference:	**CHA 4960 Tank Cleaning Study**
Author(s), year:	Gamblin A. 2005
Report/Doc. number:	115 FPE
Guideline(s):	Pesticides Safety Directorate Guideline No. 302
GLP:	no

Executive Summary:
Propylene and stainless steel tanks were filled with CHA 4960, agitated and allowed to stand for one hour before the contents were drained off. Two subsequent additions with water to clean any residuals and rinses were conducted (relation PPP solution/cleaning solution was 1:2) and the each of the rinses sampled. Two further water rinses were carried out, this time each also contained the substance "All Clear Extra" (relation PPP solution/cleaning solution was 1:3). Again each of the rinses was sampled. A final water rinse was then made of the tanks and the rinse water sampled. Analysis was conducted by HPLC and fenoxaprop-p-ethyl content was determined for all the wash samples. All concentrations in the tank wash samples, starting with a 1:2 dilution were below the estimated limit of quantification of 0.1 µg/mL fenoxaprop-P-ethyl.

Conclusion:
Standard agricultural tank-rinsing procedures after the use of CHA 4960 should result in effective cleaning such that phytotoxic effects would not be expected.
From the worst-case cleaning procedure in the study presented above with no detection of residual fenoxaprop-P-ethyl above quantification limit (at dilution conc. 1:2), the applicant concludes that no residual amounts of fenoxaprop-P-ethyl will occur when the cleaning procedure is applied according to label instructions and GAP (at a dilution of 1:100).

Remark RMS
The analytical method enclosed to the study reveals that the values achieved are < 0.1 µg/mL (≈ 0.03 µg/mL).

B.4.3. EMERGENCY MEASURES IN CASE OF AN ACCIDENT

Containment of spillages
Stop the source of the spill immediately if safe to do so. Contain the spill to prevent any further contamination of surface, soil or water.
It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping.

Decontamination of areas, vehicles and buildings
If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with soda lye and much water. Absorb wash liquid with absorbent and transfer to suitable containers. The used containers should be properly closed and labeled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

Disposal of damaged packaging, absorbents and other materials
Larger amounts of contaminated packaging and adsorption materials should be disposed of as special waste in compliance with local and national regulations.

Protection of emergency workers and residents, including bystanders
Use personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.

First aid measures

Inhalation	If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.
Skin contact	Immediately remove contaminated clothing and footwear. Flush skin with water. Wash with water and soap. See physician if irritation develops.
Eye contact	Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. Get medical attention.
Ingestion	Inducing vomiting is not recommended. Rinse mouth and drink water or milk. If vomiting does occur, rinse mouth and drink fluids again. Get medical attention immediately.

For further information please refer to MSDS of the product, appended.

B.4.4. PACKAGING, COMPATIBILITY OF THE PLANT PROTECTION PRODUCT WITH PROPOSED PACKAGING MATERIALS

The packaging has been designed according to the FAO "Guidelines for the Packaging and Storage of Pesticides". Cheminova A/S Fenoxaprop-p-ethyl formulation CHA 4960 will be sold in COEX HDPE/PA containers in sizes of 0.5 L to 20 L.

Capacity (nominal):	100 mL	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	External diameter:	53-73 mm, normal 62,5 mm
	Overall height:	70-100 mm, normal 91 mm
Closure:	Screw cap closure:	40-50 mm
	Opening:	32-42 mm

Capacity (nominal):	500 mL	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	External diameter:	50-90 mm, normal 69 mm
	Overall height:	150-220 mm, normal 193 mm
Closure:	Screw cap closure:	40-50-63 mm
	Opening:	32-42-54.7 mm

Capacity (nominal):	1 L	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	External diameter:	65-100 mm, normal 89 mm
	Overall height:	200-260 mm, normal 234 mm
Closure:	Screw cap closure:	40-50-63 mm
	Opening:	32-42-54.7 mm

Capacity (nominal):	5 L	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	Height:	260-350 mm, normal 298 mm
	Depth:	170-210 mm, normal 193 mm
	With:	120-160 mm, normal 142 mm
Closure:	Screw cap closure:	50-60-63 mm
	Opening:	42-48-54.7 mm

Capacity (nominal):	10 L	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	Height:	310-400 mm, normal 371 mm
	Depth:	190-260 mm, normal 240 mm
	With:	150-200 mm, normal 179 mm
Closure:	Screw cap closure:	50-60-63 mm
	Opening:	42-48-54.7 mm

Capacity (nominal):	15 L	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	Height:	245-335 mm, normal 290 mm
	Depth:	250-320 mm, normal 292 mm
	With:	180-270 mm, normal 247 mm
Closure:	Screw cap closure:	50-60-63 mm
	Opening:	42-48-54.7 mm

Capacity (nominal):	20 L	
Type:	Blow molded plastics bottle or can with screw cap	
Material:	COEX HDPE/PA	
Size (approx.):	Height:	350-450 mm, normal 386 mm
	Depth:	250-320 mm, normal 292 mm
	With:	180-270 mm, normal 247 mm
Closure:	Screw cap closure:	50-60-63 mm
	Opening:	42-48-54.7 mm

COEX HDPE/PA has been chosen as the appropriate packing material because of its high resistance to chemical solvents. In an accelerated storage stability test by Hinz, B. 2006; (177 FPE) B.2 (PPP) the applicability of the packing material for the plant protection product CHA 4960 was analysed. No visual and physical signs of any corrosion/deterioration of the packing had occurred during the 14 day storage period. Monitoring of the packing indicates that COEX HDPE/PA is a stable packing.

The two years shelf life study from Hinze, B. 2008 (238 FPE) B.2 (PPP) at ambient temperature was performed with a commercial packaging consisting of a COEX HDPE/PA corpus and a screw cap out of HDPE with IHS seal. This study also indicates that COEX HDPE/PA is a stable packing.

B.4.5. PROCEDURES FOR DESTRUCTION OR DECONTAMINATION OF THE PLANT PROTECTION PRODUCT AND ITS PACKAGING

In general disposal of waste and packaging must always be in accordance with all applicable local regulations.
According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.
Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewerage systems.

It is recommended to consider possible ways of disposal of the packaging in the following order:

1. Reuse or recycling should first be considered. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur if no other possibility exists. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

For further information please refer to MSDS of the product filed under KCA 4/01.

B.4.5.1. Neutralisation procedure

There are no methods of neutralisation.

For further information please refer to MSDS of the product, appended.

B.4.5.2. Controlled incineration

As fenoxaprop-P-ethyl does not have a halogen content >60%, assessment of the pyrolytic behaviour under controlled conditions is not required. The recommended safe means of disposal is controlled incineration at an approved chemical waste facility or in accordance with local regulations.

For further information please refer to MSDS of the product, appended.

Cheminova A/S
Thyborønvej 78
DK-7673 Harbøre
Denmark

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CHEMINOVA
HELPING YOU GROW

Material group	48X/4960	Page 1 of 13
Product name	FENOXAPROP-P-ETHYL 69 g/l EW	September 2015
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes November 2014

SAFETY DATA SHEET

FENOXAPROP-P-ETHYL 69 g/l EW

Revision: Sections containing a revision or new information are marked with a ♣.

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

1.1. **Product identifier** ..... FENOXAPROP-P-ETHYL 69 g/l EW
Contains fenoxaprop-P-ethyl, cloquintocet-mexyl and 1,2-benzisothiazol-3(2H)-one

Trade name ..... FOXTROT

1.2. **Relevant identified uses of the substance or mixture and uses advised against** ..... Can be used as herbicide only.

1.3. **Details of the supplier of the safety data sheet** *CHEMINOVA A/S*
P.O. Box 9
DK-7620 Lemvig
Denmark
sds@cheminova.dk

1.4. **Emergency telephone number** ... (+45) 97 83 53 53 (24 h; for emergencies only)

♣ SECTION 2: HAZARDS IDENTIFICATION

2.1. **Classification of the substance or mixture** Sensitisation – skin: Category 1 (H317)
Hazards to the aquatic environment, chronic: Category 2 (H411)

WHO classification ..... Class U (Unlikely to present acute hazard in normal use)

Health hazards ..... The product may cause allergic sensitisation. It has irritating properties.

Environmental hazards ..... The product is toxic to aquatic organisms.

2.2. **Label elements**
According to EU Reg. 1272/2008 as amended
Product identifier ..... Fenoxaprop-P-ethyl 69 g/l EW
Contains fenoxaprop-P-ethyl, cloquintocet-mexyl and 1,2-benzisothiazol-3(2H)-one

Hazard pictograms (GHS07, GHS09)

Signal word ..... Warning

Hazard statements
H317 ..... May cause an allergic skin reaction.
H411 ..... Toxic to aquatic life with long lasting effects.

Supplementary hazard statements
EUH066 ..... Repeated exposure may cause skin dryness and cracking.
EUH401 ..... To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements
P261 ..... Avoid breathing vapours.
P280 ..... Wear protective gloves.
P302+P352 ..... IF ON SKIN: Wash with plenty of soap and water.
P333+P313 ..... If skin irritation or rash occurs: Get medical advice/attention.
P362 ..... Take off contaminated clothing and wash before reuse.
P501 ..... Dispose of contents/container as hazardous waste.

2.3. **Other hazards** ..... None of the ingredients in the product meets the criteria for being PBT or vPvB.

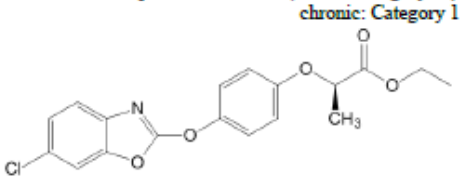
♣ SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances** ..... The product is a mixture, not a substance.

3.2. **Mixtures** ..... See section 16 for full text of hazard statements.

Active ingredient
Fenoxaprop-P-ethyl ..... Content: 7% by weight
CAS name ..... Propanoic acid, 2-[4-[(6-chloro-2-benzoxazolyl)oxy]phenoxy]-, ethyl ester, (R)-
CAS no. 71283-80-2
IUPAC name ..... (R)-Ethyl 2-[4-[(6-chloro-2-benzoxazolyl)oxy]phenoxy]propanoate
ISO name ..... Fenoxaprop-P-ethyl
EC no. (EINECS no.) ..... None
EU index no. ..... None
Classification of the ingredient ..... Sensitisation – skin: Category 1B (H317)
Specific target organ toxicity – repeated exposure: Category 2 (H373)
Hazards to the aquatic environment, acute: Category 1 (H400)
chronic: Category 1 (H410)

Structural formula .....



Reportable ingredients

	Content (% w/w)	CAS no.	EC no.	Classification
Hydrocarbons, C10-C13, aromatics, < 1% naphthalene Reg. no. 01-2119451097-39	38		922-153-0	Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411)
Alcohols, C9-11, ethoxylated	10	68439-46-3	None	Acute Tox. 4 (H302) Eye Dam. 1 (H318)
Cloquintocet-mexyl Reg. no. 01-0000012013-89	3	99607-70-2	None	Acute Tox. 4 (H302) Skin Sens. 1B (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
1,2-Benzisothiazol-3(2H)-one	0.01	2634-33-5	EINECS no.: 220-120-9	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400)

♣ SECTION 4: FIRST AID MEASURES

4.1. **Description of first aid measures**

Inhalation ..... If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.

Skin contact ..... Immediately remove contaminated clothing and footwear. Flush skin with water. Wash with water and soap. See physician if irritation develops.

Eye contact ..... Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. Get medical attention.

Ingestion ..... Inducing vomiting is not recommended. Rinse mouth and drink water or milk. If vomiting does occur, rinse mouth and drink fluids again. Get medical attention immediately.

4.2. **Most important symptoms and effects, both acute and delayed** — Primarily irritation.

4.3. **Indication of any immediate medical attention and special treatment needed** — Immediate medical attention is required in case of ingestion.

It may be helpful to show this safety data sheet to physician.

Notes to physician ..... A specific antidote for exposure to this material is not known. Treatment of exposure is as for a general chemical. Gastric lavage and/or administration of activated charcoal can be considered.

The product contains petroleum distillates which may pose a inhalation pneumonia hazard.

SECTION 5: FIREFIGHTING MEASURES

5.1.	**Extinguishing media**	Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.
5.2.	**Special hazards arising from the substance or mixture**	The essential breakdown products are: carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride and various organic chlorinated compounds.
5.3.	**Advice for firefighters**	Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1.	**Personal precautions, protective equipment and emergency procedures**	It is recommended to have a predetermined plan for the handling of spills. Empty, sealable vessels for the collection of spills should be available. In case of large spill (involving 10 tonnes of the product or more): 1. Use personal protection equipment; see section 8 2. Call emergency telephone no.; see section 1 3. Alert authorities. Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and boots. Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area. Remove sources of ignition. Avoid and reduce mist formation as much as possible.
6.2.	**Environmental precautions**	Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.
6.3.	**Methods and materials for containment and cleaning up**	It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6). If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with soda lye and much water. Absorb wash liquid with absorbent and transfer to suitable containers. The used containers should be properly closed and labelled. Large spills which soak into the ground should be dug up and

transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

6.4. **Reference to other sections** ..... See subsection 8.2. for personal protection. See section 13 for disposal.

SECTION 7: HANDLING AND STORAGE

7.1. **Precautions for safe handling** ..... In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. Otherwise, the material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

Inhalation of vapours of the product can cause lowered consciousness, which increases the risks of operating machinery and driving.

Do not discharge to the environment. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

7.2. **Conditions for safe storage, including any incompatibilities** No special precautions are required. Extreme heat is to be avoided. Protect against strong heat from sunshine or other source, e.g. fire.

Keep in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

7.3. **Specific end use(s)** ..... The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

Material group	48X/4960	Page 6 of 13
Product name	FENOXAPROP-P-ETHYL 69 g/l EW	September 2015

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. **Control parameters**

Personal exposure limits ..... To our knowledge, not established for fenoxaprop-P-ethyl.

Aromatic hydrocarbons ..... 100 ppm total hydrocarbon is recommended.

However, other personal exposure limits defined by local regulations may exist and must be observed.

Fenoxaprop-P-ethyl
DNEL ..... 0.014 mg/kg bw/day
PNEC ..... 0.01 mg/l

Aromatic hydrocarbons
DNEL, dermal ..... 12.5 mg/kg bw/day
DNEL, inhalation ..... 151 mg/m^3
PNEC, aquatic environment ..... Not applicable

8.2. **Exposure controls** ..... When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.

Respiratory protection The product does not automatically present an airborne exposure concern when handled carefully, but in the event of a discharge of the material which produces a heavy vapour or mist, workers should put on officially approved respiratory protection equipment with a universal filter type including particle filter.

Protective gloves ..... Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton. The breakthrough time of these materials for this product are unknown, but it is expected that they will give adequate protection.

Eye protection ..... Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.

Other skin protection Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of appreciable or prolonged exposure, coveralls of barrier laminate may be required.

♣ SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on physical and chemical properties**

Appearance	White liquid
Odour	Aromatic
Odour threshold	Not determined
pH	6.3 at 25°C
Melting point/freezing point	Below 0°C
Initial boiling point and boiling range	Approx. 100°C
Flash point	Above 100°C (Pensky-Martens closed cup)
Evaporation rate	(Butyl acetate = 1) **Aromatic hydrocarbons** : < 0.01
Flammability (solid/gas)	Not applicable (liquid)
Upper/lower flammability or explosive limits	**Aromatic hydrocarbons** : 0.6 - 7.0 vol% (≈ 0.6 - 0.7 kPa)
Vapour pressure	**Fenoxaprop-P-ethyl** : 5.3×10^{-7} Pa at 20°C **Aromatic hydrocarbons** : 13 Pa at 20°C 80 Pa at 55°C
Vapour density	(Air = 1) **Aromatic hydrocarbons** : > 1
Relative density	Not determined Density: approx. 1.03 g/ml
Solubility(ies)	Solubility of **fenoxaprop-P-ethyl** at 20°C in: ethyl acetate > 380 g/l n-hexane 7.0 g/l water 0.7 mg/l
Partition coefficient n-octanol/water	**Fenoxaprop-P-ethyl** : $\log K_{ow} = 4.28$ **Aromatic hydrocarbons** : some of the main components have $\log K_{ow} = 4.0 - 4.4$ at 25°C by model calculation
Autoignition temperature	Above 400°C
Decomposition temperature	Not determined
Viscosity	140 - 2200 mPa.s at 20°C, depending on shear stress
Explosive properties	Not explosive
Oxidising properties	Not oxidising

9.2. **Other information**

Miscibility	The product is emulsifiable in water.

SECTION 10: STABILITY AND REACTIVITY

10.1.	**Reactivity**	To our knowledge, the product has no special reactivities.
10.2.	**Chemical stability**	Stable at ambient temperatures.
10.3.	**Possibility of hazardous reactions**	None known.
10.4.	**Conditions to avoid**	Heating of the product will produce harmful and irritant vapours.
10.5.	**Incompatible materials**	Strong acids and alkalis.
10.6.	**Hazardous decomposition products**	See subsection 5.2.

♣ SECTION 11: TOXICOLOGICAL INFORMATION

11.1. **Information on toxicological effects** * = Based on available data, the classification criteria are not met.

Material group	48X/4960	Page 8 of 13
Product name	FENOXAPROP-P-ETHYL 69 g/l EW	September 2015

Product

Acute toxicity		The product is not harmful by ingestion, inhalation or dermal contact. * However, it should always be treated with the usual care of handling chemicals. The acute toxicity of the product is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: > 2000 mg/kg (method OECD 425)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method OECD 402)
	- inhalation	LC_{50}, inhalation, rat: > 4.96 mg/l/4 h (method OECD 403)
Skin corrosion/irritation		Moderately irritating to skin (method OECD 404). *
Serious eye damage/irritation		Mildly irritating to eyes (method OECD 405). *
Respiratory or skin sensitisation		Skin sensitizer (method OECD 429).
Germ cell mutagenicity		The product does not contain any ingredient found to be mutagenic. *
Carcinogenicity		The product does not contain any ingredient found to be carcinogenic. *
Reproductive toxicity		The product does not contain any ingredient found to have adverse effects on reproduction. *
STOT – single exposure		To our knowledge, no specific effects have been observed after single exposure. *
STOT – repeated exposure		The following is valid for the active ingredient fenoxaprop-P-ethyl. Target organs: liver and kidneys, increased organ weight NOAEL: 20 ppm (2 mg/kg bw/day) in a 90-day rat study.
Aspiration hazard		The product does not present an aspiration hazard. *
Symptoms and effects, acute and delayed		Primarily irritation.

Fenoxaprop-P-ethyl

Toxicokinetics, metabolism and distribution		Fenoxaprop-P-ethyl is rapidly absorbed after oral intake, but only to a limited extent (approx. 40%). It is widely distributed in the body, with the highest concentrations found in the liver, kidneys, blood and fatty tissues. It is extensively metabolised and rapidly excreted. There is no indication of accumulation.
Acute toxicity		The substance is not harmful by ingestion, inhalation or dermal contact. * The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: 3150 - 4000 mg/kg (method OECD 401)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method US-EPA 81-2)
	- inhalation	LC_{50}, inhalation, rat: > 1.224 mg/l/4 h (method OECD 403)
Skin corrosion/irritation		Slightly irritating to skin (method US-EPA 81-5). *
Serious eye damage/irritation		Slightly irritating to eyes (method US-EPA 81-4). *

Material group	48X/4960	Page 9 of 13
Product name	**FENOXAPROP-P-ETHYL 69 g/l EW**	September 2015

Respiratory or skin sensitisation ...		Sensitising (method US-EPA 81-6).

Hydrocarbons, C10-C13, aromatics, < 1% naphthalene

Acute toxicity		The substance is not considered as harmful. * The acute toxicity as measured on a similar product is:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: > 5000 mg/kg (method OECD 401)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method OECD 402)
	- inhalation	LC_{50}, inhalation, rat: > 4.7 mg/l (method OECD 403)
Skin corrosion/irritation		Can cause skin dryness (measured on similar products; method OECD 404).
Serious eye damage/irritation		May cause mild, short-lasting discomfort to eyes (measured on similar products; method OECD 405). *
Respiratory or skin sensitisation ...		Not expected to cause respiratory or skin sensitisation (measured on similar products; method OECD 406). *

Alcohols, C9-11, ethoxylated

Acute toxicity		The product is harmful if swallowed.
Route(s) of entry	- ingestion	LD_{50}, oral, rat: 1000 - 1400 mg/kg
	- skin	LD_{50}, dermal, rabbit: > 2000 mg/kg (method OECD 402) *
	- inhalation	LC_{50}, inhalation, rat: not available
Skin corrosion/irritation		Severely irritating to rabbit skin.
Serious eye damage/irritation		Severely irritating to eyes.
Germ cell mutagenicity		There is no evidence of mutagenicity. *
Reproductive toxicity		No adverse effects on reproduction are found in animal tests. *
STOT – single exposure		Inhalation can be expected to cause irritation of airways.

Cloquintocet-mexyl

Acute toxicity		The substance is harmful by ingestion. The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: 1098 mg/kg (method OECD 425)
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg (method OECD 402) *
	- inhalation	LC_{50}, inhalation, rat: > 5.05 mg/l (method OECD 403) *
Skin corrosion/irritation		Mildly irritating to skin (method OECD 404). *
Serious eye damage/irritation		Mildly irritating to eyes (method OECD 405). *
Respiratory or skin sensitisation ...		Skin sensitizer (method OECD 429).

1,2-Benzisothiazol-3(2H)-one

Acute toxicity		The substance is harmful by ingestion.
Route(s) of entry	- ingestion	LD_{50}, oral, rat (male): 670 mg/kg

	LD_{50}, oral, rat (female): 784 mg/kg (method OPPTS 870.1100; measured on 73% solution)
- skin	LD_{50}, dermal, rat: > 2000 mg/kg * (method OPPTS 870.1200, measured on 73% solution)
- inhalation	LC_{50}, inhalation, rat: not available
Skin corrosion/irritation	Slightly irritating to skin (method OPPTS 870.2500).
Serious eye damage/irritation	Severely irritating to eyes (method OPPTS 870.2400).
Respiratory or skin sensitisation ...	Moderate dermal sensitizer to guinea pigs (method OPPTS 870.2600). The substance appears to be significantly more sensitising to humans.

♣ SECTION 12: ECOLOGICAL INFORMATION

12.1. **Toxicity** ..... The product is toxic to fish, aquatic invertebrates and aquatic plants. It is not considered as harmful to birds, soil micro- and macroorganisms and insects.

The ecotoxicity of the product is measured as:

- Fish	Rainbow trout (*Oncorhynchus mykiss*)	96-h LC_{50}	3.83 mg/l
- Invertebrates	Daphnids (*Daphnia magna*)	48-h LC_{50}	3.1 mg/l
- Algae	Green algae (*Desmodesmus subspicatus*)	72-h EC_{50}	1.85 mg/l
- Birds	Bobwhite quail (*Colinus virginianus*)	LD_{50}	> 2250 mg/kg
- Plants	Duckweed (*Lemna gibba*)	7-day LC_{50} 7-day NOEC	4.3 mg/l 0.98 mg/l
- Earthworms	*Eisenia fetida*	14-day LC_{50}	356.6 mg/kg dry soil
- Bees	Honey bee (*Apis mellifera* L.)	72-h LD_{50}, contact 48-h LD_{50}, oral	599 µg/bee 356 µg/bee

12.2. **Persistence and degradability** .... **Fenoxaprop-P-ethyl** is biodegradable, but does not meet the criteria for being readily biodegradable. Primary degradation half-lives are found to be less than 1 day in aerobic soil.

Aromatic hydrocarbons are readily biodegradable as measured according to OECD guidelines. However, they are not always rapidly degraded in the environment, but are expected to be degraded at a moderate rate, depending on circumstances.

The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

12.3. **Bioaccumulative potential** ..... See section 9 for octanol-water partition coefficients.

Due to rapid degradation, **fenoxaprop-P-ethyl** does not bioaccumulate.

Aromatic hydrocarbons have a potential to bioaccumulate if continuous exposure is maintained. Most components can be

metabolised by many organisms. Bioaccumulation factors (BCFs) of some of the main components are 1200 - 3200 by model calculation.

12.4. **Mobility in soil** ..... The active ingredient **fenoxaprop-P-ethyl** has low mobility in soil.

Aromatic hydrocarbons are not mobile in the environment, but are volatile and will evaporate to the air if released onto water or on the surface of soil. They float and can migrate to sediment.

12.5. **Results of PBT and vPvB assessment** ..... None of the ingredients meets the criteria for being PBT or vPvB.

12.6. **Other adverse effects** ..... Other relevant hazardous effects in the environment are not known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. **Waste treatment methods** ..... Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.

Disposal of waste and packagings must always be in accordance with all applicable local regulations.

Disposal of product ..... According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewerage systems.

Disposal of packaging ..... It is recommended to consider possible ways of disposal in the following order:
1. Reuse or recycling should first be considered. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur if no other possibility exists. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

14.1. **UN number** 3082

14.2. **UN proper shipping name** ..... Environmentally hazardous substance, liquid, n.o.s. (fenoxaprop-P-ethyl and alkyl(C3-C6)benzenes)

14.3. **Transport hazard class(es)** 9

14.4.	**Packing group**	III
14.5.	**Environmental hazards**	Marine pollutant
14.6.	**Special precautions for user**	Do not discharge to the environment.
14.7.	**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code**	The product is not transported in bulk tankers.

SECTION 15: REGULATORY INFORMATION

15.1.	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	Seveso category in Annex I to Dir. 2012/18/EU: dangerous for the environment. Young people under the age of 18 are not allowed to work with the product. All ingredients are covered by EU chemical legislation.
15.2.	**Chemical safety assessment**	A chemical safety assessment is not required to be included for this product.

♣ SECTION 16: OTHER INFORMATION

	Relevant changes in the safety data sheet	Minor corrections only
	List of abbreviations	CAS Chemical Abstracts Service Dir. Directive DNEL Derived No Effect Level EC European Community EC_{50} 50% Effect Concentration EINECS European INventory of Existing Commercial Chemical Substances EW Emulsion, oil in Water GHS Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013 IBC International Bulk Chemical code ISO International Organisation for Standardization IUPAC International Union of Pure and Applied Chemistry LC_{50} 50% Lethal Concentration LD_{50} 50% Lethal Dose MARPOL Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution NOAEL No Observed Adverse Effect Level NOEC No Observed Effect Concentration N.o.s. Not otherwise specified OECD Organisation for Economic Cooperation and Development OPPTS Office of Prevention, Pesticides and Toxic Substances PBT Persistent, Bioaccumulative, Toxic PNEC Predicted No Effect Concentration Reg. Regulation STOT Specific Target Organ Toxicity

US-EPA	Environmental Protection Agency USA
vPvB	very Persistent, very Bioaccumulative
WHO	World Health Organisation

References ..... Data measured on the product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

Method for classification ..... Test data

Used hazard statements .....

H302	Harmful 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.
H373	May cause damage to kidneys 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.
EUH066	Repeated exposure may cause skin dryness and cracking.
EUH401	To avoid risks to human health and the environment, comply with the instructions of use.

Advice on training ..... This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by Cheminova A/S may exist. The user has to check the validity of the information under local circumstances.

Prepared by: Cheminova A/S
Safety, Health, Environment & Quality Department / GHB

B.4.6. REFERENCES RELIED ON

Annex point / reference number	Author(s)	Year	Title Source Company name, Report No., Date, GLP status, published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner
KCP 4.2/01	Anonymous	2015	SAFETY DATA SHEET FENOXAPROP-P-ETHYL 69 g/l EW Cheminova A/S No GLP ***also filed under KCP 12/01***	N	N		CHE
KCP 4.2/02	Gamblin, A.	2005	CHA 4960 Tank Cleaning Study AgroChemex Ltd., UK. Cheminova A/S Report No.: 115 FPE No GLP	N	Y	New representative formulation	CHE