Committee for Risk Assessment

RAC

Opinion

proposing harmonised classification and labelling
at EU level of
Fenoxycarb

EC number: 276-696-7
CAS number: 72490-01-8

ECHA/RAC/CLH-O-0000001884-67-03/F

Adopted

14 September 2012

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OPINION OF THE COMMITTEE FOR RISK ASSESSMENT ON A DOSSIER PROPOSING HARMONISED CLASSIFICATION AND LABELLING AT EU LEVEL

In accordance with Article 37 (4) of (EC) No 1272/2008, the Classification, Labelling and Packaging (CLP) Regulation, the Committee for Risk Assessment (RAC) has adopted an opinion on the proposal for harmonised classification and labelling (CLH) of:

Substance Name: **Fenoxycarb**

EC Number: **276-696-7**

CAS Number: **72490-01-8**

The proposal was submitted by **Germany** and received by RAC on **2 August 2011.**

In this opinion, all classifications are given firstly in the form of CLP hazard classes and/or categories, the majority of which are consistent with the Globally Harmonised System (GHS) and secondly, according to the notation of 67/548/EEC, the Dangerous Substances Directive (DSD).

The proposed harmonised classification

	CLP	**DSD**
Current entry in Annex VI to CLP Regulation	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	N; R50/53
Proposal by dossier submitter for consideration by RAC	Carc. 2 (H351) Aquatic Acute 1 (H400), M-factor 1 Aquatic Chronic 1 (H410), M-factor 10 000	Xn; Carc. Cat. 3; R40 N; R50/53
Resulting harmonised classification (future entry in Annex VI to CLP Regulation) based on the proposal by the dossier submitter	Carc. 2 (H351) Aquatic Acute 1 (H400), M-factor 1 Aquatic Chronic 1 (H410), M-factor 10 000	Xn; Carc. Cat. 3; R40 N; R50/53

PROCESS FOR ADOPTION OF THE OPINION

Germany has submitted a CLH dossier containing a proposal together with the justification and background information documented in a CLH report. The CLH report was made publicly available in accordance with the requirements of the CLP Regulation at ***http://echa.europa.eu/web/guest/harmonised-classification-and-labelling-previous-consultations*** on **17 August 2011**. Parties concerned and Member-State Competent Authorities (MS-CAs) were invited to submit comments and contributions by **1 October 2011.**

ADOPTION

Rapporteur, appointed by RAC: **Annick Pichard**
Co-rapporteurs, appointed by RAC: **Ceu Nunes**

The opinion of RAC takes into account the comments of MSCAs and parties concerned provided in accordance with Article 37 (4) of the CLP Regulation.

The opinion of RAC on the proposed harmonised classification and labelling has been reached on **14 September, 2012** in accordance with Article 37 (4) of the CLP Regulation, giving parties concerned the opportunity to comment. Comments received are compiled in Annex 2.

The opinion of the RAC was adopted by **consensus.**

OPINION OF RAC

The RAC adopted the opinion that **Fenoxycarb** should be classified and labelled as follows:

Classification and labelling in accordance with the criteria of the CLP Regulation, (EC) 1272/2008

Index No	International Chemical Identification	EC No	CAS No	Classification		Labelling			Specific Conc. Limits M-factors	Notes
				Hazard Class and Category Code(s)	Hazard statement Code(s)	Pictogram, Signal Word Code(s)	Hazard statement Code(s)	Suppl. Hazard statement Code(s)		
006-086-00-6	(ethyl [2-(4-phenoxyphenoxy)ethyl] carbamate); fenoxycarb	276-696-7	72490-01-8	Carc. 2 Aquatic Acute 1 Aquatic Chronic 1	H351 H400 H410	GHS08 GHS09 Wng	H351 H410	-	M (acute) = 1 M (chronic) = 10 000	-

Classification and labelling in accordance with the criteria of the DSD, 67/548/EEC

Index No	International Chemical Identification	EC No	CAS No	Classification	Labelling	Concentration Limits	Notes
006-086-00-6	(ethyl [2-(4-phenoxyphenoxy)ethyl]carbamate); fenoxycarb	276-696-7	72490-01-8	Xn Carc. Cat. 3; R40 N; R50/53	Xn; N R: 40-50/53 S: (2-)-22-36/37-60-61	N; R50/53 C ≥ 25% N; R51/53 2,5% ≤ C < 25% R52/53 0,25% ≤ C < 2,5%	-

SCIENTIFIC GROUNDS FOR THE OPINION

The opinion relates only to those hazards that have been reviewed in the available scientific data as contained in the proposal for harmonised classification and labelling submitted by Germany.

HUMAN HEALTH HAZARD ASSESSMENT

Carcinogenicity

Summary of the dossier submitter's proposal

The dossier submitter's proposal is based on carcinogenicity studies and mechanistic consideration.

Two carcinogenicity studies (1 rat, 1 mice) are reported, although the information presented in the dossier was limited to a brief summary and two summary tables. No effects were observed in the rat carcinogenicity study (Goodyear, 1992). In the mice study (Bachmann, 1995), a statistical increase in the incidence of lung carcinoma and hepatocellular carcinoma were found in males from 500 ppm (corresponding to 61 mg/kg bw/day) dietary concentration of fenoxycarb. In females, a statistical increase in the incidence of lung adenoma and adenocarcinoma were found at the high dose of 2000 ppm (corresponding to 224 mg/kg bw/day) in the diet. The dossier submitter concluded that increased rates of lung and liver tumours were observed in the study in mice.

Note: At the end of the CLH dossier, in a section titled "Other information", an additional comment (initially presented under the biocidal products evaluation) is presented to justify classification for carcinogenicity and a mice study (Everett, 1987) is mentioned but no details are provided. This information is not apparently further considered in the conclusion of the dossier submitter.

Detailed information is also presented on investigative work supportive of the plausible link between **lung** tumors in mice and the formation of two potential carcinogenic **metabolites (urethane** and benzoquinone/hydroquinone**)** on one hand and the possible role of **peroxisome proliferation for liver** tumors on the other hand**.**

The dossier submitter concluded that it is not possible to rule out the toxicological relevance of the formation on these carcinogenic metabolites for humans *in vivo* since:

- the formation of these two carcinogenic metabolites is possible in human liver microsomes, although the amounts are lower than in other species tested (mice being the most sensitive species)
- human lung and liver have enzymatic capacity for metabolizing urethane (ethylcarbamate) to the more carcinogenic metabolites (vinyl carbamate epoxide).

The dossier submitter discussed the possibility that "the higher sensitivity of mice when compared to rats can be considered to result from the combination of at least two parameters: an inducible metabolism of fenoxycarb by liver enzymes which yields greatly increased amounts of urethane, especially in males, and the presence/activity of Cyp2e1 in lung tissue which results in formation of the ultimate carcinogen."

Furthermore, the dossier submitters view was that the negative results in both a micronucleus test and a DNA adduct study conducted with fenoxycarb in combination seem to indicate the existence of a threshold for genotoxicity from fenoxycarb, despite concerns related to the acceptance of the results (single dose of fenoxycarb only in the micronucleus test, weak positive results with urethane used as positive control in the DNA adduct study).

The dossier submitter assumed that liver tumors in mice could be ascribed to peroxisome proliferation as increases in enzyme activity were shown in the liver at dose levels of fenoxycarb relevant for liver tumour formation. However, this point is not further considered in the conclusion so it is not clear whether it was considered for classification purposes (the dossier submitter concluded that fenoxycarb induced lung and liver tumours in mice).

Based on the above, classification of fenoxycarb regarding carcinogenicity under CLP as **Carc. 2 (H351)** is proposed (DSD, **Carc. Cat. 3**).

Comments received during public consultation

There was no disagreement with the proposed classification in the comments received during public consultation. Member States asked for more detailed information regarding the carcinogenicity study results, specifically regarding the second carcinogenicity study in mice (Everett, 1987), with details on Harderian gland tumors, and a clarification of the rationale for classification (comparison with criteria).

- **Information received during public consultation**

Everett study (1987) was presented in the RCOM:

This consisted of an 80 week combined toxicity study with a 52 weeks interim sacrifice and was performed at doses of: 0, 30, 110, 420 mg/kg food for males and 0, 20, 80, 320 mg/kg food for females.

Results for Carcinogenicity:

After 80 weeks of treatment, no effects were noted on mortality, clinical signs, body weight, food consumptionion and haematology parameters. At the high dose, LDH levels were increased in males after 80 weeks (142 % of controls) and liver weights were increased. Histopathology of livers from all animals did not reveal any morphological changes.

Neoplastic lesions were found in lungs. A statistically significant trend was found for higher incidences of alveolar/bronchiolar tumours (benign and malignant combined) in males of all treated groups. Malignant tumour incidences were not statistically different to controls for any doses. Multiplicity was also increased. All other findings were found to be within the range of normal background pathology or were typical age-related degenerative changes in mice.

An expert opinion on the findings in the lungs was included in the study file and arguments were presented to question the biological relevance of higher tumour incidences in the lungs in this study. However this examination was not performed blind and no individual data were presented. Although full sectioning of the lungs may seem advantageous to detect undiagnosed tumours, comparison with historical data is no longer possible, which is an essential part of the evaluation of carcinogenicity study outcome. Also, proper statistical tests were lacking.
Based on the above considerations, it was concluded that fenoxycarb exhibited an oncogenic potential in mice based on higher incidences of alveolar/bronchiolar tumours in the lungs of males of all treated groups.

RAC concluded from this study that there was an increase in lung tumors in male mice (positive trend but not statistically significant when compared to the controls).
The information in this study is considered limited because of shortcomings:

- The chosen levels for the high dose groups were considered too low to represent a Maximum Tolerated Dose
- No historical data
- No data were presented on clinical signs and statistical evaluations were limited

RAC assessment - comparison with the classification criteria and justification

Results from carcinogenicity data:

Three studies are available. No effects were observed in the rat carcinogenicity study (Goodyear, 1992). In the mouse study of Everett (1987), there was an increase in lung tumors in male mice: a positive trend but not statistically significant when compared to the controls. This study is considered as insufficient for assessment. In the second mouse study (Bachmann, 1995), performed according to appropriate test guidelines and GLP, positive findings were reported:

- In **males**: a statistical increase in incidence of **lung** carcinoma and **liver** (hepatocellular) carcinoma were found from 500 ppm (corresponding to 61 mg/kg bw/day) dietary concentration of fenoxycarb. The same incidence was observed at 500 and 2000 ppm (corresponding to 247 mg/kg bw/day).
- In **females**: a statistical increase in incidence of lung adenoma and adenocarcinoma were found at the high dose of **2000** ppm (corresponding to 224 mg/kg bw/day) in the diet.

Mechanistic considerations - Discussion on metabolites:

It was emphasized during the RAC discussions that the genotoxic potential of the substance and its metabolite ethylcarbamate should be considered.

*Introduction on **ethyl carbamate (urethane**)*

Ethylcarbamate has been classified as a group 2A carcinogen (probably carcinogenic to humans) by the IARC (2010). Ethylcarbamate has been shown to be carcinogenic in several species including mice following administration by different routes including the oral route and producing, among others, lung & liver tumours, as well as harderian gland tumors. It also induces other tumors such as lymphomas, hemangiosarcomas, melanomas and vascular tumours; it is an initiator for skin carcinogenesis in mice (http://www.ncbi.nlm.nih.gov/pubmed/15625555).

A number of publications showed that ethyl carbamate is a genotoxic carcinogen that requires metabolic *in vivo* activation by P450 2E1 to vinyl carbamate epoxide which forms DNA and protein adducts and acts as the ultimate carcinogen, i.e. metabolism considered as relevant for humans according to IARC.

Ethylcarbamate and fenoxycarb:

The formation of ethylcarbamate from fenoxycarb was clearly observed ***in vitro*** in different species including in **human liver** cells, although the rate of formation was slower and lower for human (the highest rate was observed for mice). The results from the *in vitro* study in lung cells were negative for all species: human, rat, mouse, marmoset. There is no available data *in vivo*.

If it is not genotoxic *in vitro* nor *in vivo* then a threshold could be anticipated for tumor formation of fenoxycarb. However, one could question these negative results as they may reflect the formation of the genotoxic metabolite (ethylcarbamate) at levels below the limit of detection. The involvement of ethylcarbamate cannot be ruled out but whether ethylcarbame is involved or not, it is generally considered that unless proven otherwise by data there is no threshold for genotoxicants.

There is some positive trend in tumour formation for ethylcarbamate and fenoxycarb:

- Fenoxycarb and ethylcarbamate provide similar main tumors: lung and liver (and Harderian gland) in mice and not rat (case of Harderian gland clarified during RCOM with data provided, not presented here) and

- The amount seems to correspond if it is assumed that ethylcarbamate is a metabolite of fenoxycarb, see some summarized values in table below.

Table : Incidences of lung tumors for ethylcarbamate and fenoxycarb (synthesized)

LUNG	Ethyl carbamate				Fenoxycarb			
Dose (ppm)	*0*	*10*	*30*	*90*	*0*	*10*	*50*	*500*
Carcinoma or Adenoma M	5/48	18/48	29/47	37/48	9/50	11/50	5/50	21/50
Carcinoma or Adenoma F	6/48	8/48	28/48	39/47	3/50	7/50	6/49	9/50

However, ethylcarbamate also induces many other tumors not observed with fenoxycarb.

From all these data, it cannot be concluded whether ethylcarbamate is responsible for the tumors observed with fenoxycarb or not.

Mechanistic considerations - Case of peroxisome proliferation.

The relevance of peroxisome proliferation was discussed (EFSA concluded carcinogenicity cat.2 in 2010 for liver tumors due to peroxisome proliferation). Peroxisome proliferation is considered to be an increase in liver enzyme activity and cell proliferation. One mechanistic study in mice (Beilstein, 1996; available in the EFSA DAR report and with a summary also submitted by Syngenta) provided strong results for fenoyxcarb as an inducer; this was confirmed by a 28-D repeated study in rat where peroxisome proliferation and hypertrophy were observed by electronic microscopy (Suter, 1986; available in DAR report and a summary also submitted by Syngenta). Fenoxycarb is also considered as a peroxisome proliferator according to EFSA (2010).

Conclusion:

According to the criteria, classification as a carcinogen is warranted for fenoxycarb based on the positive carcinogenicity results observed (statistically significant) with occurrence of treatment-related malignanlung tumors in both sexes in one convincing study in mice.

Classification in category Carc. 1A is not warranted because of the lack of human data on the carcinogenicity of fenoxycarb.

Classification in category Carc. 1B based on animal studies would normally require sufficient evidence of carcinogenicity demonstrated in either a) two or more species, or b) two or more independent studies in one species, or increased incidence of tumours in both sexes of a single species. However, carcinogenicity in a single animal study (both sexes, ideally in a GLP study) could also be "*sufficient evidence*" and could therefore lead to a Category 1B classification *in the absence of any other data,* which is not the case for fenoxycarb.

For fenoxycarb, positive carcinogenicity results (statistically significant) are observed with the occurrence of treatment-related lung malignant tumors in both sexes in one convincing study in mice. Other data are also available and were carefully evaluated in line with the criteria "sufficient evidence" to CLP criteria 1B. Indeed, a single study in one species and sex might be considered to provide sufficient evidence of carcinogenicity when:

- "Malignant neoplasms occur to an **unusual** degree with regard to incidence, site, type of tumour or age at onset": no unusual dose was used and no unusual degree was reported with the study of fenoxycarb.
- "In combination with positive ***in-vivo*** mutagenicity": genotoxicity results for fenoxycarb are negative although it can be speculated that the formation of genotoxic metabolite ethylcarbamate (identified in vitro) is possible, under detection limit. Thus, it can't be given a clear affirmative answer to this CLP criterion 1B. Besides,
    - Since the main target organs for tumors are identical for fenoxycarb and the carcinogenic metabolite ethylcarbamate (lung, liver, hardarian glands), one could assume that it may play a role in the development of tumors in vivo in mice fied but profiles are different (ethylcarbamate is a multisite carcinogen)..
    - There are no reasons to believe that metabolite (if it plays a role) will not be formed in humans, however, mice appear to be more sensitive species for their higher rate of metabolistation in ethylcarbamate and the inducible quantity and activity of liver enzyme.
- "**Strong** findings of tumours at multiple sites": it does not appear to be the case for fenoxycarb since occurrences of other tumors are of doubtful relevance. Indeed,
    - The liver tumors may be related to peroxisome proliferation (although involv**ement** of the genotoxic metabolites cannot be ruled out): this mechanism is considered to be of no clear relevance to human. EFSA concluded the same way on this issue.
    - The Hardarian gland tumors observed are only adenomas and this is not considered as relevant effect for humans.
- "Positive responses in **several species** add to the weight of evidence". No incidence of tumors was reported in rats with fenoxycarb.

RAC therefore regards the available evidence for carcinogenicity to be limited. According to the criteria for Carc. 2 the data suggest a carcinogenic effect, but for making a definitive evaluation the data are limited because there is only a single experiment available demonstrating the carcinogenic effect clearly, with other data which, following a weight of evidence approach, weaken the observed results. From the criteria for carcinogenicity testing and weight of evidence, **classification as CLP Carc. 2 is deemed appropriate** (DSD, Carc. Cat. 3; R40). This classification is consistent with the position of EFSA (2010).

Hazardous to the Aquatic Environment

Summary of the dossier submitter's proposal

The dossier submitter does not propose to change the current environmental classification of fenoxycarb. The substance has a harmonised entry in Annex VI to Regulation (EC) No 1272/2008, classifying fenoxycarb as hazardous to the aquatic environment with Aquatic Acute 1 (H400; "Very toxic to aquatic life") and Aquatic Chronic 1 (H410; "Very toxic to aquatic life with long lasting effects") under CLP and DSD, N; R50/53 (Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment).

However, according to the revised criteria for classifying substances hazardous to the aquatic environment implemented with the 2nd ATP to the CLP Regulation, the dossier submitter proposed to set M-factors for the environmental categories Aquatic Acute 1 (H400) and Aquatic Chronic 1 (H410).

The proposal by the dossier submitter for the acute M-factor is based on acute toxicity studies with fish and Daphnia, where acute effect values of 0.66 mg/l (*Oncorhynchus mykiss*) and 0.6 mg/l (*Daphnia magna*) were found, respectively. These values trigger the classification as Aquatic Acute 1 (H400) with an **M-factor of 1**.

The proposal by the dossier submitter for the separate chronic M-factor is based on a long-term toxicity study with *Daphnia magna*, where a 21 d-NOEC of 0.0016 µg a.s./l based on mean measured concentration was determined, which triggers the classification as Aquatic Chronic 1 (H410) with an **M-factor of 10,000.**

Additional key elements

Biodegradation:

The ready biodegradation test result cannot be validated. Two higher tier studies, namely simulation tests for the relevant environmental compartments of "water/sediment" are available (as included in the Biocides Competent Authority Report (CAR), 2010) and considered relevant for the evaluation of degradation.
The conclusions of the key study by Nicollier, G. (2000) is that Fenoxycarb is considered to be not readily biodegradable. The dissipation behaviour of fenoxycarb in aquatic systems was studied in two Swiss water/sediment systems (river and pond) resulting in primary degradation half-lives of 14.0 days (river) and 5.0 days (pond) for the water phase as well as 12.0 days (river) and 8.0 days (pond) for the entire system at an average EU outdoor temperature of 12°C. For modelling purposes the recalculated half-lives of the entire systems are 12.0 and 18.0 days. Mineralisation of fenoxycarb to carbon dioxide reached maximum amounts of 40.4 % and 36.3 % of the applied radioactivity (AR) after 119 days in the river and pond test system. Although primary degradation half-lives are below (or very close to) 16 days, there is no information about the hazards of the degradants, and so the substance cannot be considered to be rapidly (or readily) degradable.

The data obtained in the microcosm study by Kennedy, J.H. (1995) may serve only as **supportive information.** The data cannot be considered for the assessment of the biodegradation behaviour of fenoxycarb, as no dissipation half-life for the total system was derived and it was not conducted under controlled conditions (e.g. light, pH, temperature).

Aquatic toxicity:

Fenoxycarb has a high acute toxicity to fish (96h-LC_{50} = 0.66 mg a.s./l), daphnids (48h-EC_{50} = 0.60 mg a.s./l) and green algae (96h-E_bC_{50} = 0.54 mg/l). In long-term studies, *Daphnia magna* was the most sensitive aquatic species with a 21 d-NOEC of 0.0016 µg a.i./l based on mean measured concentrations (Forbis, 1987). This NOEC is far lower than the NOEC from the fish early life stage test of 48 µg a.s./l. For *Chironomus riparius* a nominal 25 d-EC_{10} of 0.18 µg a.s./l was recorded with fenoxycarb.

No acceptable study on algal growth inhibition with fenoxycarb has been submitted (the study provided in the DAR is not considered valid). Furthermore, it is concluded that the classification will not change by submitting a test with algae, and given the high sensitivity of invertebrates, it seems unlikely that M-factors would be affected. For green algae no valid NOEC is available. However, in a mesocosm study, no effects on phytoplankton community were observed at concentrations that have significant effects on invertebrates. The high sensitivity of daphnids *and Chironomus sp.* in long-term tests can be explained by the mode of action of fenoxycarb (inhibiting metamorphosis to the adult stage and interfering with the moulting of early instar larvae by exhibiting juvenile hormone activity).

Comments received during public consultation

During public consultation, comments on aquatic hazards were received from two Member states. The comments did not question the proposal of setting M-factors, according to the revised criteria as laid down in the 2nd ATP to CLP, for the existing harmonised environmental classification as Aquatic Acute 1 and Aquatic Chronic 1.
For the full set of comments and responses, see the response to comments document (RCOM) in Annex 2.

RAC assessment - comparison with the classification criteria and justification

Classification according to the 2nd ATP to the CLP Regulation:

According to the requirements of the CLP Regulation the classification of a substance as Aquatic Acute 1 and/or Aquatic Chronic 1 triggers the setting of (a) multiplying factor(s) (M-factor). Furthermore the revised criteria in the 2nd ATP allow the setting of separate M-factors for acute and long-term hazards.

RAC supports the conclusion of the dossier submitter to set an M-factor of 1 for fenoxycarb which is classified as Aquatic Acute 1 (H400) based on the EC_{50} for *Daphnia magna* and fish (*Oncorhynchus mykiss*) which is between 0.1 and 1 mg/l.

Acute (short-term) aquatic toxicity:

The acute aquatic toxicity is based on the lowest of the available toxicity values (*Daphnia magna*: 48h-EC_{50} = 0.60 mg a.s./l and *Oncorhynchus mykiss*: 96h-LC_{50} = 0.66 mg a.s./l) between 0.1 and 1 mg/l.
RAC Conclusion: category Acute 1 applies with an **M-factor of 1**.

Chronic aquatic toxicity:

Adequate chronic toxicity data is available only for fish and crustaceans, not for algae/aquatic plants. The chronic aquatic toxicity based on the lowest of the available toxicity values for fish and crustaceans is between 0.000001 and 0.00001 mg/l (*Daphnia magna* NOEC = 0.0016 µg a.s./l and *Oncorhynchus mykiss* NOEC = 48 µg a.s./l). According to the 2nd ATP the criteria for classification of a substance into the categories Chronic 1 to 3 follow a tiered approach where the first step is to see if adequate information on chronic toxicity is available allowing long-term hazard classification. In absence of adequate chronic toxicity data for some or all trophic levels, a potential classification is made for the trophic level(s) with chronic data and compared with that made using the acute toxicity data for the other trophic level(s). The final classification shall be made according to the most stringent outcome (Guidance on the application of the CLP criteria, Figure 4.1.1 and Annex I.3.2).

- NOEC-based system (Table 4.1.0 (b)(i)): lowest chronic aquatic toxicity NOEC ≤ 1 mg/l, not rapidly degradable, hence category Chronic 1;
- Surrogate system (Table 4.1.0 (b)(iii)): lowest acute aquatic toxicity L(E)C_{50} < 1 mg/l, not rapidly degradable (and Log Kow > 4), hence category Chronic 1;

RAC Conclusion: category Chronic 1 applies following the most stringent outcome; since the conclusion is based on the chronic NOEC (Table 4.1.0 (b) (i)) the **M-factor of 10,000** is based on the chronic aquatic toxicity between 0.000001 and 0.00001 mg/l.

Degradation:

The ready biodegradation test cannot be validated. Although primary degradation half-lives are below (or very close to) 16 days in water-sediment simulation studies, there is no information about the hazards of the degradants. Mineralisation to carbon dioxide reached maximum levels of 40.4 % and 36.3 % of the applied radioactivity (AR) after 119 days in the river and pond test system, respectively. Consequently, fenoxycarb does not fulfil the criteria for rapid degradation.

Bioaccumulation:

In a study according to OECD 305 a bioconcentration factor for the aquatic compartment of BCF_{fish} = 569 was measured for fenoxycarb. The BCF-value indicates that fenoxycarb has a potential for bioaccumulation via the aquatic food chain.

Aquatic classification according to the CLP criteria:

Aquatic Acute 1, M = 1 (H400)

Aquatic Chronic 1, M = 10,000 (H410)

Aquatic classification according to the DSD criteria:

Fenoxycarb is very toxic to aquatic organisms and may cause long-term adverse effects to the aquatic environment. It is therefore classified with N; R50/53:
- Acute toxicity ≤ 1 mg/l (most sensitive organism *Daphnia magna:* 48h-EC_{50} = 0.60 mg a.s./l)

- not readily degradable

- log P_{ow} is ≥ 3 and the measured BCF for fish is > 100.

In addition, the following **specific concentration limits (SCL)** shall apply:

Classification	Concentration
N; R50-53	**C ≥ 25%**
N; R51-53	**2,5% ≤ C < 25%**
R52-53	**0,25% ≤ C < 2,5%**

ANNEXES:

Annex 1 Background Document (BD)[1]
Annex 2 Comments received on the CLH report, response to comments provided by the dossier submitter and RAC (excl. confidential information).

[1] The Background Document (BD) gives detailed scientific grounds for the opinion. The BD is based on the CLH report prepared by the dossier submitter; the evaluation performed by RAC is contained in RAC boxes.