Section A7.1.1.1.2

Phototransformation in water including identity of transformation products

Annex Point IIA7.6.2.2

		1 REFERENCE	Official use only
1.1	Reference	E. Hellpointner, 1990, Assessment of the Environmental Half-Life of the Direct Phtotodegradation of Dichlofluanid in Water, Bayer AG, Crop Protection Research, Environmental Research, Institute for Metabolism Research, Monheim, Germany, Report No. PF-3449, 1990-12-17.	
1.2	Data protection	Yes	
1.2.1	Data owner	Bayer Crop Science AG	
1.2.2	Companies with letter of access	Bayer Chemicals AG	
1.2.3	Criteria for data protection	Data submitted to the MS after 13 May 2000 on existing a.s. for the purpose of its entry into Annex I/IA	
		2 GUIDELINES AND QUALITY ASSURANCE	
2.1	Guideline study	Yes, Test Guideline "Phototransformation of Chemicals in Water, Part A: Direct Phototransformation "UBA (German "Umweltbundesamt"); January 1990	
2.2	GLP	Yes	X
2.3	Deviations	No	
		3 MATERIALS AND METHODS	
3.1	Test material	$\label{eq:DichlorInder} Dichlorfluanid = N-(dichlorofluoromethylthio)-N',N'-dimethyl-N-phenylsulfamide$	
3.1.1	Lot/Batch number		
3.1.2	Specification	As given in Section 2 of the dossier	
3.1.3	Purity		
3.1.4	Radiolabelling	no	
3.1.5	UV/VIS absorption spectra and absorbance value	UV/VIS absorption spectra and extinction data are given in the report: → no measurable absorbance at wavelengths above 287 nm	
3.1.6	Further relevant properties	low water solubility: 1.3 mg/l	
3.2	Reference substances	not available from the report	X
3.3	Test solution	Due to the very low water solubility of dichlofluanid an absorption spectrum in pure water could not be recorded.	X
		An amount of 14.2 mg test substance was dissolved in 100 ml water/acetonitrile 1:1 (v:v) and finally diluted 1:10 (v:v). Thus, the concentration was 14.2 mg dichlofluanid per liter of water/acetonitrile 1:1 (v:v). The reference cuvette in the UV-spectrometer was filled with water/acetonitrile 1:1 (v:v).	
3.4	Testing procedure		

Section A7.1.1.1.2 Phototransformation in water including identity of transformation products

3.4.1 Test system The UV spectra were recorded using a UV-Vis spectrometer DMS 90 (Varian Co.) with Apple IIe as evaluation unit. 3.4.2 Properties of light source 3.4.3 Determination of irradiance 3.4.4 Temperature n.a. 3.4.5 pH n.a. 3.4.6 Duration of the test n.a. 3.4.7 Number of replicates 3.4.8 Sampling n.a. 3.4.9 Analytical methods dichlofluanid) 3.5 Transformation products 3.5.1 Method of analysis for transformation products 4 RESULTS 5. Screening test no measurable absorbance at wavelengths above 287 mm → see point 3.1.5 ∧ According to the UBA guideline the photodegradation experiment was not carried out, because the UV spectrum showed no UV absorption above 290 mm. 4.2 Actinometer data n.a. 4.3 Controls n.a. 4.4 Photolysis data 4.4.1 Concentration values 4.4.2 Mass balance n.a. 4.4.3 k'p n.a. 4.4.4 Kinetic order n.a. 4.4.4 Kinetic order n.a. 4.4.5 k'p /k'p n.a. 4.4.6 Reaction quantum yield (φ'E) The determination of the quantum yield of the direct photodegradation in water is only necessary if the molar absorption coefficient of the test compound at a wavelength above 294 mm is greater than 10 (I/mol cm).			
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$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	4.3	Controls	n.a.
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$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	4.4.3	$k^c_{\ p}$	n.a.
4.4.6 Reaction quantum yield (ϕ^c_E) not determined; The determination of the quantum yield of the direct photodegradation in water is only necessary if the molar absorption coefficient of the test compound at a wavelength above 294 nm is greater than 10 (l/mol cm).	4.4.4	Kinetic order	n.a.
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water is only necessary if the molar absorption coefficient of the test compound at a wavelength above 294 nm is greater than 10 (1/mol cm).	4.4.6	-	not determined;
4.4.7 k _{pE} see point 4.4.8			water is only necessary if the molar absorption coefficient of the test
	4.4.7	\mathbf{k}_{pE}	see point 4.4.8

BAYER CHEMICALS AG		Dichlofluanid	03/2004
Section A7.1.1.1.2 Annex Point IIA7.6.2.2		Phototransformation in water including identity of transformation products	
4.4.8	Half-life (t _{1/2E})	Assuming the maximum quantum yield of 1 a half-live of > 1 year in environmental water bodies results due to the missing sunlight absorption of the dichlofluanid molecule.	X
4.5	Specification of the transformation products	n.a.	
		5 APPLICANT'S SUMMARY AND CONCLUSION	
5.1	Materials and methods	Test was performed according to guideline "Phototransformation of Chemicals in Water, Part A: Direct Phototransformation" UBA (German "Umweltbundesamt"); January 1990.	
		According to the UBA guideline the photodegradation experiment was not carried out, because the UV spectrum showed no UV absorption above 290 nm.	
5.2	Results and discussion	No light absorbance above 287 nm was found in the UV spectrum of dichlofluanid in water. Therefore dichlofluanid is assumed to be stable against direct photolysis in water.	
5.2.1	$k^c_{\ p}$	n.a.	
5.2.2	K_{pE}	See point 5.2.4	
5.2.3	$\varphi^c{}_E$	n.a.	
5.2.4	t _{1/2E}	Assuming the maximum quantum yield of 1 a half-live of > 1 year in environmental water bodies results due to the missing sunlight absorption of the dichlofluanid molecule.	
5.3	Conclusion	Due to its lack of UV absorbance in the sunlight region dichlofluanid is not degradable by <u>direct</u> phototransformation. Even under the assumption of a quantum yield of 1 the assessments of the environmental half-life by means of computer models would yield values of several years.	

Reliability indicator = 1

No

Reliability

Deficiencies

5.3.1 5.3.2

Phototransformation in water including identity of Section A7.1.1.1.2 transformation products

Annex Point IIA7.6.2.2

	Evaluation by Competent Authorities
	Use separate "evaluation boxes" to provide transparency as to the comments and views submitted
	EVALUATION BY RAPPORTEUR MEMBER STATE
Date	16/11/04
Materials and Methods	Applicant's version is acceptable with the following comments:
	2.2 The study was done to GLP but there are no signatures on the report submitted.
	3.2 The use of reference substances was not evident from the report.
	3.3 The presence of 50 % acetonitrile in the test solution seems unnecessarily high in a study reported to be on dichlofluanid in water.
Results and discussion	Applicant's version is acceptable with the following comment:
	4.4.8 The half-life proposed is based on assumption, but is consistent with the conclusion that dichlofluanid does not degrade by direct photodegradation.
Conclusion	Applicant's version is acceptable.
Reliability	1
Acceptability	Acceptable
Remarks	All endpoints and data presented in the summary and tables have been checked against the original summary and are correct.
	COMMENTS FROM
Date	Give date of comments submitted
Materials and Methods	Discuss additional relevant discrepancies referring to the (sub)heading numbers and to applicant's summary and conclusion. Discuss if deviating from view of rapporteur member state
Results and discussion	Discuss if deviating from view of rapporteur member state
Conclusion	Discuss if deviating from view of rapporteur member state
Reliability	Discuss if deviating from view of rapporteur member state
Acceptability	Discuss if deviating from view of rapporteur member state
Remarks	