

Fludioxonil

**NOTIFICATION OF AN ACTIVE
SUBSTANCE UNDER COMMISSION
REGULATION (EU) 844/2012**

DOCUMENT M-CA, Section 9

Physical and Chemical Properties

LITERATURE DATA

Version history¹

Date	Data points containing amendments or additions and brief description	Document identifier and version number
12/1/17	CA 9.6 Additional details on the rapid assessment are provided in the results summary. All amendments are highlighted in yellow.	CGA173506_11815 11 April 2016 updated 12/1/17

¹ It is suggested that applicants adopt a similar approach to showing revisions and version history as outlined in SANCO/10180/2013 Chapter 4 How to revise an Assessment Report

Table of Contents

CA 9	LITERATURE DATA	4
CA 9.1	Title	4
CA 9.2	Author(s) of the review	4
CA 9.3	Summary: A brief summary indicating the purpose of the report, the methodology employed and the results obtained	4
CA 9.4	Protocol	5
CA 9.4.1	Statement of the objective of the review	5
CA 9.4.2	Criteria for relevance with which decisions to select studies in the dossier were made	5
CA 9.5	Search methods	5
CA 9.6	Results	12

CA 9 LITERATURE DATA

CA 9.1 Title

This document is a Literature Review Report for fludioxonil, metabolites, and EU representative formulations A8702M (CELEST[®]) and A8240D (GEOXE[®]).

CA 9.2 Author(s) of the review

Syngenta
Jealott's Hill International Research Centre
Bracknell
Berkshire
RG42 6EY
UK

CA 9.3 Summary: A brief summary indicating the purpose of the report, the methodology employed and the results obtained

This report summarises the search for scientific peer-reviewed open literature on physical and chemical properties “on the active substance fludioxonil and its relevant metabolites(s) which may impact health, the environment and non-target species and published within the last ten years before the date of submission of the dossier” in accordance with Article 8(5) of Regulation (EC) No. 1107/2009.

The exact search strategy is detailed in the Tables 9.5-1 to -5 but a summary of the methodology employed is given below.

1. A very broad search was conducted in 18 scientific source databases (detailed in Table 9.5-2) for fludioxonil and its metabolites using the search terms listed in CA 9.5.1.
2. Duplicates titles from between the data bases were automatically removed from the output.
3. A rapid assessment of the titles was conducted to remove any additional duplicates and any obviously irrelevant titles (where enough information was available from the title alone).
4. A further rapid assessment was conducted using summary abstracts and any clearly irrelevant titles were removed.
5. A detailed assessment of the full-text documents for the remaining titles was conducted using the criteria developed for study relevance (see Table 9.4.2-1)
6. Any relevant papers were highlighted and assessed for reliability.

An overview of the results is summarised in the table below and full details are provided in Section 9.5.

Data requirement(s) captured in the search	Initial	Top-up
Total number of <i>summary records</i> retrieved after <i>all*</i> searches of peer-reviewed literature (excluding duplicates)	76	18
Number of <i>summary records</i> excluded from the search results after rapid assessment for relevance**	76	18
Total number of <i>full-text</i> documents assessed in detail*	0	0
Number of <i>studies</i> excluded from further consideration after detailed assessment for relevance	0	0
Number of <i>studies</i> not excluded for relevance after detailed assessment (i.e. relevant studies and studies of unclear relevance)	0	0

*both from bibliographic databases and other sources of peer-reviewed literature

**aligned with EFSA Journal 2011; 9(2):2092: rapid assessment means exclusion of “obviously irrelevant records” based on titles, and titles plus abstracts

CA 9.4 Protocol

CA 9.4.1 Statement of the objective of the review

The review has the objective of identifying scientific peer-reviewed open literature on physical and chemical properties on the active substance fludioxonil and its relevant metabolites(s) which may impact health, the environment and non-target species and published within the last ten years before the date of submission of the dossier in accordance with Article 8(5) of Regulation (EC) No. 1107/2009.

CA 9.4.2 Criteria for relevance with which decisions to select studies in the dossier were made

Table 9.4.2-1: List of Criteria for relevance for each data requirement

Data requirements(s) (indicated by the correspondent CA data point(s))	Criteria for relevance
Physical and chemical properties (CA 2.1 to 2.15)	<ol style="list-style-type: none"> Well defined test material (including purity/content) Sufficient experimental information provided to substantiate and evaluate whether the study conclusions and endpoints are robust (e.g. pre-treatment details, characterisation of physico-chemical parameters, replication, statistical methods, and appropriate sampling regime). Study conditions should not differ significantly from recommended protocols* and internationally agreed tests methods (CIPAC MT and OECD methods). Study conditions should not interfere with the interpretation of the study results. End-points or positions stated as a result of the study significantly affect the proposed risk assessment in the dossier.

* Recommended protocols under each data point include but are not limited to those listed in the Commission Communications 2013/C 95/01 and 2013/C 95/02

CA 9.5 Search methods

Date of initial search	27 May 2014
Date of most recent update to search	28 October 2015
Date span of the search	10 years

An additional search was also conducted on the new metabolite SYN454245. Details are given in the table below. The search returned no results.

Date of initial search (SYN454245)	03 February 2016
Date of most recent update to search	Not applicable
Date span of the search	Unlimited

Table 9.5-1: Detailed Search Parameters for Physical and chemical properties (CA 2.1 to 2.15)

Search Strategy	
L1	QUE (131341-86-1 OR CGA173506 OR (CGA(W)173506) OR CELESTE)
L2	QUE (FLUDIOXONIL OR (MAXIM(W)(4FS OR PSP)) OR (BERET(W)GOLD))
L3	QUE (GEOXE OR MAXIM OR SAPHIRE OR SAVIOR OR SCHOLAR OR SEIBIA)
L4	QUE ((L3(10A)(PESTICID? OR FUNGICID?)) OR 1135442-63-5)
L5	QUE (L1 OR L2 OR L4) FLUDIOXONIL
L6	QUE (1418095-12-1 OR 126120-85-2 OR 1418095-13-2 OR 166982-10-1)
L7	QUE (CGA339833 OR (CGA(W)(339833 OR 192155)) OR CGA192155)
L8	QUE (CGA344623 OR (CGA(W)(344623 OR 265378)) OR CGA265378)
L9	QUE (L6 OR L7 OR L8) METABOLITES
L10	QUE L5 OR L9
Plus	
L1	QUE (((VAPOUR OR VAPOR) (3A) PRESSURE?) OR SOLUBILITY?)
L2	QUE((PARTITION(3A)COEFF?) OR EXPLOSIV? OR OXIDIING?)
L3	QUE (OXIDI! ED? OR FLAMMAB? OR (FLASH (3A) POINT?))
L4	QUE (VOLATIL? OR VISCOS? OR VISCOUS? OR (LOG(W)KOW))
L5	QUE (VAPORI! AT? OR VAPOURI! AT? OR VAPOR! ED? OR VAPOURI! ED?)
L6	QUE ((SPECIFIC (3A) GRAVITY?) OR ((MELTING OR BOILING)(2W)POINT))
L7	QUE (EVAPORAT? OR DENSITY OR LOGP OR (LOG(W)P) OR KOC)
L8	QUE ((DIFFUSION (3A) COEFF?) OR (DISSOCI? (3A) CONSTANT?))
L9	QUE (ANTIINFLAMM? OR ANTIGNIT? OR IGNIT? OR COMBUST?)
L10	QUE((L1 OR L2 OR L3) OR (L4 OR L5 OR L6) OR (L7 OR L8 OR L9))
Additional SYN454245 search	
L1	QUE SPE=ON ABB=ON PLU=ON (SYN454245 OR SYN(W) 545245)
L2	QUE SPE=ON ABB=ON PLU=ON (3 (W) CYANO (W) 2 (W) 2 (W) 2 (W) DIFLUORO (W) BENZO (W) 1 (W) 3 (W) DIOXOL (W) 4 (W) YL (W) (PROPIONIC OR PROPANOIC) (W) ACID OR 3 (W) CYANO (W) 2 (W) 2 (W) 2 (W) DIFLUORO (W) 1 (W) 3 (W) BENZODIOXOL (W) 4 (W) YL (W) (PROPIONIC OR PROPANOIC) (W) ACID)
L3	QUE SPE=ON ABB=ON PLU=ON (3 (W) CYANO (W) 2 (W) 2 (W) 2 (W) DIFLUORO (W) BENZO (W) 1 (W) 3 (W) DIOXOLYL (W) (PROPIONIC OR PROPANOIC) (W) ACID OR 3 (W) CYANO (W) 2 (W) 2 (W) 2 (W) DIFLUORO (W) 1 (W) 3 (W) BENZODIOXOLYL (W) (PROPIONIC OR PROPANOIC) (W) ACID)
L4	QUE SPE=ON ABB=ON PLU=ON (2 (W) 2 (W) DIFLUORO (W) 1 (W) 3 (W) BENZODIOXOL (W) YL (W) 3 (W) CYANO (W) (PROPIONIC OR PROPANOIC) (W) ACID OR 2 (W) 2 (W) DIFLUORO (W) 1 (W) 3 (W) BENZODIOXOLYL (W) 3 (W) CYANO (W) (PROPIONIC OR PROPANOIC) (W) ACID)
L5	QUE SPE=ON ABB=ON PLU=ON (2 (W) 2 (W) DIFLUORO (W) 1 (W) 3 (W) BENZODIOXOLYL (W) 1 (W) CARBOXY (W) 3 (W) PROPAN (1W) NITRIL OR 2 (W) 2 (W) DIFLUORO (W) 1 (W) 3 (W) BENZODIOXOL (W) YL (W) 1 (W) CARBOXY (W) 3 (W) PROPAN (1W) NITRIL)
L6	QUE SPE=ON ABB=ON PLU=ON (DIFLUORO (2W) BENZODIOXOLYL (1W) CARBOXY (1W) PROPAN (1W) NITRIL OR DIFLUORO (2W) BENZODIOXOL (W) YL (1W) CARBOXY (1W) PROPAN (1W) NITRIL)
L7	QUE SPE=ON ABB=ON PLU=ON (CYANO (3W) DIFLUORO (W) BENZO (2W) DIOXOL (1W) YL (W) (PROPIONIC OR PROPANOIC) (W) ACID OR CYANO (3W) DIFLUORO (2W) BENZODIOXOL (1W) YL (W) (PROPIONIC OR PROPANOIC) (W) ACID)

Search Strategy	
L8	QUE SPE=ON ABB=ON PLU=ON (DIFLUORO(2W)BENZODIOXOL(W)YL(1W)CYANO(W)(PROPIONIC OR PROPANOIC)(W)ACID OR DIFLUORO(2W)BENZODIOXOLYL(1W)CYANO(W)(PROPIONIC OR PROPANOIC)(W)ACID)
L9	QUE SPE=ON ABB=ON PLU=ON (DIFLUORO(2W)BENZODIOXOL(W)YL(1W)CYANO(W)(PROPIONIC OR PROPANOIC)(W)ACID OR DIFLUORO(2W)BENZODIOXOLYL(1W)CYANO(W)(PROPIONIC OR PROPANOIC)(W)ACID)
L10	QUE SPE=ON ABB=ON PLU=ON (DIFLUOROBENZODIOXOLYL(5A)(CYANO(W)(PROPIONIC OR PROPANOIC)(W)ACID OR CARBOXY(1W)PROPAN(1W)NITRIL))
L11	QUE SPE=ON ABB=ON PLU=ON (3(W)CYANO(W)2(W)2(W)2(W)DIFLUOROBENZO(W)1(W)3(W)DIOXOL(W)4(W)YL(W)(PROPIONIC OR PROPANOIC)(W)ACID OR ACIDE(W)3(W)CYANO(W)2(W)2(W)2(W)DIFLUOROBENZO(W)3(W)DIOXOL(W)4(W)YL(W)PROPIONIQUE)
L12	QUE SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3 OR L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10 OR L11)
Please note: CAS registry number and record are not available	

Table 9.5-2: Detailed Search Parameters for Physical and chemical properties (CA 2.1 to 2.15)

Provider	Database	Justification	Limits applied	Number*
Host STN	MEDLINE	Contains information on every area of medicine providing comprehensive coverage from 1948 to present. Sources include journals and chapters in books or symposia. The database is updated 5 times each week with an annual reload and therefore stays very current in its cover.	10 years	76 Initial search and 18 Top up search
	EMBASE	The database, covers worldwide literature in the biomedical and pharmaceutical fields, including biological science, biochemistry, human medicine, forensic science, pediatrics, pharmacy, pharmacology and drug therapy, pharmacoeconomics, psychiatry, public health, biomedical engineering and instrumentation, and environmental science. Sources include more than 4,000 journals from approximately 70 countries, monographs, conference proceedings, dissertations, and reports. The databases covers data from 1974-present and is updated daily.		
	ESBIOBASE	A database providing comprehensive coverage of the entire spectrum of biological research worldwide. Coverage includes the following areas: applied microbiology, biotechnology, cancer research, cell & developmental biology, clinical chemistry, ecological & environmental sciences, endocrinology, genetics, immunology, infectious diseases, metabolism, molecular biology, neuroscience, plant and crop science, protein biochemistry, and toxicology. Records are selected from over 1,700 international scientific journals, books, and conference proceedings. The database covers the period 1994 - present and is updated weekly.		
	AGRICOLA	A bibliographic database containing selected worldwide literature of agriculture and related fields. Coverage of the database includes agricultural economics and rural sociology, agricultural production, animal sciences, chemistry, entomology, food and human nutrition, forestry, natural resources, pesticides, plant science, soils and fertilizers, and water resources. Also covered are related areas such as biology and biotechnology, botany, ecology, and natural history. The database draws on bibliographies, serial articles, book chapters, monographs, computer files, serials, maps, audiovisuals, and reports. It covers the period 1970-present and is updated monthly.		
	BIOSIS	A large and comprehensive worldwide life science database covers original research reports, reviews, and selected U.S. patents in biological and biomedical areas, with subject coverage ranging from aerospace biology to zoology. Sources include periodicals, journals, conference proceedings, reviews, reports, patents, and short communications. Nearly 6,000 life source journals, 1,500 international meetings as well as review articles, books, and monographs are reviewed for inclusion. It covers the period 1926 – present and is updated weekly.		
	CABA	Covers worldwide literature from all areas of agriculture and related sciences including biotechnology, forestry, and veterinary medicine. Sources include journals, books, reports, published theses, conference proceedings, and patents. It covers the period 1973-present and is updated weekly.		
	HCAPLUS	Covers worldwide literature from all areas of chemistry, biochemistry, chemical engineering, and related sciences including applied, macromolecular, organic, physical, inorganic, and analytical chemistry. Current sources include over 8,000 journals, patents, technical reports, books, conference proceedings, dissertations, product reviews, bibliographic items, book reviews, and meeting abstracts. Electronic-only journals and Web preprints are also covered. Cited references are included for journals, conference proceedings and basic patents from the U.S., EPO, WIPO, and German patent offices added to the CAS databases from 1999 to the present. Also provides early access to the bibliographic information, abstracts and CAS Registry Numbers for documents in the process of being indexed by CAS. Covers the period 1907 – present and is updated daily		

Provider	Database	Justification	Limits applied	Number*
	FSTA	The database provides worldwide coverage of all scientific and technological aspects of the processing and manufacture of human food products including basic food sciences, biotechnology, hygiene and toxicology, engineering, packaging, and all individual foods and food products. Sources include more than 2,200 journals, books, reviews, conference proceedings, patents, standards, and legislation. It covers the period 1969 – present and is updated weekly.		
	FROSTI	The database contains citations to the worldwide literature on food science and technology including food and beverages, analytical methods, quality control, manufacturing, microbiology, food processing, health and nutrition, recipes, and additives. Sources include approximately 800 scientific and technical journals, bulletins, technical reports, conference proceedings, grey literature, and British, European (EP), U.S., Japanese, and international (PCT) patent applications. Covers the period 1972 – present and is updated twice weekly.		
	GEOREF	Covers international literature on geology and geosciences. Sources include the Bibliography of North American Geology, Bibliography and Index of Geology Exclusive of North America, Geophysical Abstracts, Bibliography of Fossil Vertebrates, selected records from Geoline and from geology sections of PASCAL and state and national geological surveys. Covers the period 1669 – present and is updated twice a month.		
	TOXCENTER	Covers the pharmacological, biochemical, physiological, and toxicological effects of drugs and other chemicals. It is composed of the following subfiles: BIOSIS, CAplus, IPA and MEDLINE and sources include abstracts, books and book chapters, bulletins, conference proceedings, journal articles, letters, meetings, monographs, notes, papers, patents, presentations, research and project summaries, reviews, technical reports, theses, translations, unpublished material, web reprints. Covers the period 1907 – present and is updated weekly		
	PQSCITECH	Is a huge resource in all areas of science and technology from engineering to lifescience. The file is a merge of 25 STN databases formerly known as CSA databases (Cambridge Scientific Abstracts): AEROSPACE, ALUMINIUM, ANTE, AQUALINE, AQUASCI, BIOENG, CERAB, CIVILENG, COMPUAB, CONFSCI, COPPERLIT, CORROSION, ELCOM, EMA, ENVIROENG, HEALSAFE, LIFESCI, LISA, MATBUS, MECHENG, METADEX, OCEAN, POLLUAB, SOLIDSTATE, and WATER. Sources are journals, patents, books, reports, and conference proceedings spanning the period 1962 – present and it is updated monthly.		
	PASCAL	The database provides access to the world's scientific and technical literature including physics and chemistry, life sciences (biology, medicine, and psychology), applied sciences and technology, earth sciences, and information sciences. French and European literature is particularly well represented. Approximately 5,000 journal titles are indexed. References to theses and to conference proceedings are also included. Spans the period 1977 to present and is updated weekly		
	SCISEARCH	Is an international index to the literature covering virtually every subject area within the broad fields of science, technology, and biomedicine. SciSearch contains all the records published in Science Citation Index Expanded™ and additional records from the Current Contents series of publications. Bibliographic information and cited references from over 5,600 scientific, technical, and medical journals are contained in the database. Spans the period 1974 to present and is updated weekly.		
	ANABST	Covers worldwide literature on analytical chemistry. The ANABSTR file contains bibliographic records with abstracts (since 1984) for documents reported in printed Analytical Abstracts. Sources for ANABSTR include journals, books, conference proceedings, reports, and standards. Spans the period 1980 to present and is updated weekly.		

Provider	Database	Justification	Limits applied	Number*
	HCHEMLIST	The database identifies the regulatory requirements for a specific substance from many of the world's most significant regulated substances lists. It records substance identity information, inventory status, source of information, and summaries of regulatory activity, reports, and other compliance information.		
	CROPU	The database covers all aspects of pesticides, including their use in crop protection and pest control. Information on plant and insect growth regulators, attractants, repellents and biological control is also included. The database draws on 1,100 scientific journals, conference proceedings, and patents beginning in 1996. Records contain bibliographic information, titles, abstracts, in-depth indexing, and Enzyme Commission Numbers. Spans the period 1985 to 2003.		
	CROPB	The Crop Protection Backfile is the companion backfile to the current Crop Protection File, CROPU, covering all aspects of pesticides, including their use in crop protection and pest control. Information on plant and insect growth regulators, attractants, repellents and biological control is also included. Bibliographic information and indexing terms are searchable. Spans the period 1968 to 1984.		

* Total number of summary records retrieved after removing duplicates

Table 9.5-3: Detailed Search Parameters for Web searches

Website name and service publisher	URL	Justification	Search terms	Limits applied	Number*
A web search has not been conducted as the database search reported above is considered to provide an adequately comprehensive search of the quality peer reviewed literature.					

* Total number of summary records or full-text documents retrieved after removing duplicates

Table 9.5-4: Detailed Search Parameters for Journal Table of Contents

Journal name	Journal URL or publisher	Dates, volumes and issues searched	Method of searching	Search terms	Number*
A search for journal table of contents has not been conducted as the database search reported above is considered to provide an adequately comprehensive search of the quality peer reviewed literature.					

* Total number of summary records or full-text documents retrieved after removing duplicates

Table 9.5-5: Detailed Search Parameters for Reference Lists

Bibliographic details of documents whose reference lists were scanned	Number*
A search for reference lists has not been conducted as the database search reported above is considered to provide an adequately comprehensive search of the quality peer reviewed	

literature.

* Total number of summary records or full-text documents retrieved after removing duplicates

CA 9.6 Results

Table 9.6-1: Results of study selection process

Data requirement(s) captured in the search	Number (Initial Search)	Number (Top-Up Search)
Total number of <i>summary records</i> retrieved after <i>all*</i> searches of peer-reviewed literature (excluding duplicates)	76	18
Number of <i>summary records</i> excluded from the search results after rapid assessment for relevance**	76	18
Total number of <i>full-text</i> documents assessed in detail*	0	0
Number of <i>studies</i> excluded from further consideration after detailed assessment for relevance	0	0
Number of <i>studies</i> not excluded for relevance after detailed assessment (i.e. relevant studies and studies of unclear relevance)	0	0

*both from bibliographic databases and other sources of peer-reviewed literature

** aligned with EFSA Journal 2011; 9(2) 2092: rapid assessment means exclusion of “obviously irrelevant records” based on titles

Following exclusion of references from the rapid assessment, no literature references were deemed to be relevant to the chemistry endpoints for fludioxonil and hence have not been discussed in the relevant Document MCA.

For the initial rapid assessment, the titles were scanned to identify whether the studies were indeed relevant to physical and chemical properties or not. For the initial rapid assessment the study titles and/or abstracts were assessed to identify studies of potential relevance. Any studies clearly not in the remit of the European review or unambiguously belonging to other sections were excluded.

Here is a summary of the 76 titles removed during rapid assessment -

- 76 titles were discounted from further assessment as they were obviously irrelevant e.g. no references to the physico-chemical properties or analytical methods of fludioxonil.