



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Pesticide Fact Sheet

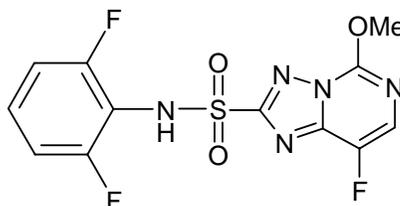
Name of Chemical: Florasulam
Reason for Issuance: Conditional Registration
Date Issued: September, 2007

1. Description of Chemical

Chemical Name: N-(2,6-difluorophenyl)-8-fluoro-5-methoxy(1,2,4)triazolo(1,5-c)pyrimidine-2-sulfonamide

Common Name: Florasulam

Chemical Formula:



EPA PC Code: 129108

**Chemical Abstracts
Service (CAS) Number:** 145701-23-1

**Year of Initial
Registration:** 2007

Pesticide Type: Herbicide

Chemical Class: Sulfonamide and Triazolopyrimidine
Herbicide

U.S. Producer: Dow AgroSciences LLC

II. Use Patterns and Formulations

Application Sites: Florasulam is registered for use on cereal grains including wheat, barley, oats, rye, and triticale.

Types of Formulations: Florasulam Wet Cake Technical (EPA File Symbol 62719-LLO)
 EF 1343 (EPA File Symbol 62719-LAN)
 EF 1383 (EPA File Symbol 62719-LLI)
 EF 1440 (EPA File Symbol 62719-LAR)
 GF 184 (EPA File Symbol 62719-LAG)
 GF 1727 (EPA File Symbol 62719-LAE)

Application Methods

And Rates:

Florasulam may be applied as a single application to wheat, barley, oats, and triticale at 0.00446 pounds of active ingredient per acre. It may be applied as a single application to rye at 0.0037 pounds of active ingredient per acre. It may be applied post-emergent use when weeds are actively growing between 2 leaf and flag leaf emergence stage. Do not apply more than 0.00446 lb/ai/acre to be applied in a single growing season. Ground and aerial equipment may be used.

III. Physical and Chemical Properties:

Table 1 – Physical and Chemical Properties of Florasulam

Physical State	Solid	
Melting point/range	193.5-230.5°C	
Specific gravity	1.53 at 22°C	
Water solubility	<u>Medium</u>	<u>Solubility (g/L)</u>
	water	0.121
	pH 5	0.084
	pH 7	6.36
	pH 9	94.2
Solvent solubility	<u>Solvent</u>	<u>Solubility (g/L)</u>
	acetone	123
	acetonitrile	72.1
	ethyl acetate	15.9
	methanol	9.81
	dichloromethane	3.75
	xylene	0.227
	n-octanol	0.184

	n-heptane	0.000019
Vapor pressure	1 x 10 ⁻⁵ Pa at 25°C	
Dissociation constant (pK_a)	4.54	
Octanol/water partition coefficient (K_{ow}) at 22°C	<u>pH</u>	<u>Log K_{ow}</u>
	4	1.00
	7	-1.22
	10	-2.06
UV/visible absorption spectrum	<u>Form</u>	<u>λ_{max} (nm)</u>
	Acidic	259.8
		203.8
	Basic	262.4
		209.7
	Methanolic	204.1
	No absorbance above 300 nm.	

IV. HUMAN HEALTH RISK ASSESSMENT

A. Toxicity

- 1. Acute Toxicity:** Florasulam has low or minimal acute toxicity via the oral (Category IV), dermal (Category III), and inhalation routes of exposure (Category IV). It is non-irritating to the eye and skin (Category IV); it is not a skin sensitizer.

Table 2 – Acute Toxicity

Acute Toxicity of Florasulam			
Guideline No.	Study Type	Results	Toxicity Category
870.1100	Acute oral – rat	LD ₅₀ ≥ 5000 mg/kg	IV
870.1100	Acute oral – mouse	LD ₅₀ ≥ 5000 mg/kg	IV
870.1200	Acute dermal – rabbit	LD ₅₀ ≥ 2000 mg/kg	III
870.1300	Acute inhalation – rat	LC ₅₀ ≥ 5.0 mg/L	IV
870.2400	Acute eye irritation – rabbit	Non-irritating	IV
870.2500	Acute dermal irritation – rabbit	Non-irritating	IV
870.2600	Skin sensitization – guinea pig	No sensitization	

- 2. Subchronic Toxicity:** Slight nephrotoxicity (increased kidney weights, hypertrophy, and degeneration/regeneration and inflammation of the descending portion of proximal tubules) was observed in the kidneys of rats (both sexes) after subchronic exposure to florasulam 90 days) at ≥ 500 mg/kg/day. Decreases in body weight and body weight gain were observed in females after subchronic (500 mg/kg/day). Additionally at 500 mg/kg/day, papillary necrosis and hyperplasia of the transitional epithelium (papilla) were observed in the kidney (males). Decreases in body weight and body weight gain were also observed in females after subchronic (500 mg/kg/day)
- 3. Chronic Toxicity:** Chronic exposure in rats led to slight nephrotoxicity (increased kidney weights, hypertrophy, and slight multi-focal mineralization of the papilla) at 250 and 500 mg/kg/day in males only. Additionally at 500 mg/kg/day, papillary necrosis and hyperplasia of the transitional epithelium (papilla) were observed in the kidney (males). Decreases in body weight and body weight gain were also observed in females after chronic exposure (250 mg/kg/day). Liver toxicity was observed in dogs (both sexes) in the form of increased alkaline phosphatase activity (59-127%), increased liver weights, hypertrophy, and hepatic vacuolation at 50 mg/kg/day after 90 days. After 1 year, there were increases in alkaline phosphatase (233-783%) in dogs (both sexes) but no changes in liver weights or gross or microscopic pathology at 50 mg/kg/day. Additionally, there were decreases in body weight, body weight gain and food consumption, as well as vacuolation of the zona reticularis and zona fasciculate in the adrenal gland (consistent with fatty change) in both sexes. There were no adverse effects noted after chronic exposure to florasulam in mice up to the limit dose of 1000 mg/kg/day.
- 4. Carcinogenicity:** There were no treatment-related increases in tumors in rat and mouse carcinogenicity studies after exposure to florasulam.
- 5. Developmental Toxicity/Developmental Neurotoxicity:** There were no treatment-related effects observed in dams or offspring in the developmental toxicity study in rabbits. In the rat developmental toxicity study, at 750 mg/kg/day, body weights were decreased by 4-6% during GD 6-19, resulting in a 16% decrease in body weight gains during treatment (GD 6-16); food consumption was also decreased (not statistically analyzed) by 6-13% during the treatment period. Additionally at this dose, absolute and relative (to body weight) kidney weights were increased ($p \leq 0.05$) by 8 and 12%, respectively. At ≥ 250 mg/kg/day, slight decreases (3-4%) were observed in fetal body weight, accompanied by delayed ossification (not significant) of the skull, ribs, and sternebrae at 750mg/kg/day. However, both findings were within the historical control range and attributed to the decreased maternal body weights also seen in this dose group. There was no evidence of neurotoxicity observed in the toxicology database. In the acute neurotoxicity study, there was a slight transient decrease in motor activity, increased incidence of minimal activity (open-field), and decreased reactivity to sharp noise (Day 1) at 2000 mg/kg/day. However, the differences from control values did not exceed the historical controls and complete recovery occurred by the next test session (Day 8). When the FOB and motor activity findings were

combined they were considered to be a treatment-related high dose effect. As there were no corroborative gross or neurological pathology, this pattern of decreased activity was considered to be likely due to general malaise. In the chronic neurotoxicity study, there were no compound-related effects on mortality, clinical signs, food consumption, FOB parameters, motor activity, or gross or neurological pathology observed at any dose. Organ weights were not provided; however, in the concurrently performed 2-year dietary chronic toxicity/carcinogenicity study, brain weight was unaffected after 12 and 24 months of treatment. There were no other potential signs of neurotoxicity noted in the toxicology database.

- 6. Reproductive Toxicity:** In the 2-generation reproduction study, at 500 mg/kg/day, there were decreases in pre-mating body weights and food consumption (Weeks 3-10), resulting in decreased overall body weight gains (Weeks 0-10) in the F1 males and in the P and F1 females. During gestation, body weights and food consumption were decreased during gestation days (GD) 0-21, resulting in decreased overall (GD 0-21) body weight gains in the P and F1 females. During lactation, body weights were decreased during lactation days (LD) 1-14; however, food consumption and overall (LD 1-21) body weight gains were not adversely affected. Additionally at 500 mg/kg/day, there were increases in kidney weights and hypertrophy. In the offspring, there were no adverse treatment-related effects observed on birth index, live birth index, viability indices, clinical signs, developmental landmarks, kidney weights, or gross pathology. Transient decreases in pup body weights (500 mg/kg/day) were observed on PND 4 pre-culling (F1 and F2 males) and PND 7 (F1 females and F2 males and females); however, by PND 21, all treated groups were similar to controls. The decreases observed were associated with decreased maternal body weight and food consumption and were transient in nature; thus, they were not considered adverse. There were no other treatment-related effects noted.
- 7. Metabolism:** Elimination was rapid. The administered dose was mostly eliminated within 12 hours in the urine. Total radioactivity found in the urine was approximately 90-92% of the dose following single or repeated low-dose treatment, and 81-85% of the dose following treatment at 500 mg/kg. Radioactivity in the feces accounted for another 5-7% at 10 mg/kg and 14-17% at 500 mg/kg. Thus, compared to the low dose, excretion of the high dose was slightly slower, and more of the compound was excreted in the feces.
- 8. Mutagenicity:** Florasulam was negative for mutations and chromosomal aberrations across four in vitro/in vivo genotoxicity studies and was considered not to pose a mutagenic concern.
- 9. Toxicology Profile:** The toxicological profile for florasulam is discussed in Table 3 below:

Table 3 – Toxicology Profile

Subchronic, Chronic and Other Toxicity Profile for Florasulam			
Guideline No.	Study Type	MRID No./Doses	Results
870.3100	90-day oral toxicity (rat)	46808219 0, 20, 100, 500, 1000/800 mg/kg/day [M/F])	NOAEL =100 mg/kg/day LOAEL = 500 mg/kg/day , based on decreased body weights (5-8%) and body weight gains (21%) in females, and evidence of slight nephrotoxicity (increased kidney weights, hypertrophy, and degeneration/regeneration and inflammation of the descending portion of proximal tubules) in both sexes
870.3100	90-day oral toxicity (mouse)	46808222 0, 20, 100, 500, 1000 mg/kg /day	NOAEL = 1000 mg/kg/day. LOAEL = Not determined
870.3150	90-day oral toxicity (dog)	46808223 0, 5, 10, 100 mg/kg /day	NOAEL = 5 mg/kg/day LOAEL = 50 mg/kg/day, based on increased alkaline phosphatase (59-127%) activity, increased liver weights, hypertrophy and increased incidence/severity of hepatic vacuolation in both sexes.
870.3200	28-day dermal toxicity (rat)	468008225 0, 100, 500, 1000 mg/kg /day	Systemic NOAEL = 1000 mg/kg/day Systemic LOAEL = Not determined Dermal NOAEL = 500 mg/kg/day Dermal LOAEL = 1000 mg/kg/day, based on edema and erythema in males (4/5)
870.3700a	Prenatal developmental toxicity (rat)	46808234 46808231 0, 50,250, 750, mg/kg/day	Maternal NOAEL = 250 mg/kg/day LOAEL = 750 mg/kg/day based on decreased body weights (4-6%, GD 6-16), body weight gains (16%, GD 6-16%), food consumption (6-13%), and increased kidney weights. Developmental NOAEL = 750 mg/kg/day Developmental LOAEL = Not determined
870.3700b	Prenatal developmental toxicity (rabbit)	46808233 46808232 0, 50, 250, 500 mg/kg /day	Maternal NOAEL = 500 mg/kg/day Maternal LOAEL = Not determined Developmental NOAEL = 500 mg/kg/day Developmental LOAEL = Not determined Note: Study acceptable due to findings of preliminary developmental toxicity study at 600 mg/kg/day (mortality and decreased body weight gains and food consumption
870.3800	Prenatal developmental toxicity (rabbit)	46808235 0, 10, 100, 500 mg/kg /day	Parental/Systemic NOAEL = 100 mg/kg/day Parental/Systemic LOAEL = 500 mg/kg/day, based on decreased body weights, body weight gains, and food consumption, as well as kidney alterations. Offspring NOAEL = 500 mg/kg/day Offspring LOAEL = Not determined Reproductive NOAEL = 500 mg/kg/day Reproductive LOAEL = Not determined

870.4100b	Chronic toxicity (dog)	46808229 0, 0.5, 5, 100/50 mg/kg/day	NOAEL = 5 mg/kg/day LOAEL = 100/50 mg/kg/day, based on decreased body weights (17%), body weight gains (68%), and food consumption in females; increased liver enzymes (alanine aminotransferase and alkaline phosphatase) and slight vacuolation of the zona reticularis and zona fasciculata in the adrenal gland (consistent with fatty change) in both sexes.
870.4200	Carcinogenicity (mouse)	46808230 0, 50, 500, or 1000 mg/kg /day	NOAEL = 1000 mg/kg/day. LOAEL = Not determined No evidence of carcinogenicity
870.4300	Combined chronic toxicity/carcinogenicity (rat)	46808236 0, 10, 250, 500 mg/kg /day	LOAEL = 250 mg/kg/day (males), based on slight nephrotoxicity (increased kidney weights, hypertrophy, and slight multi-focal mineralization in the papilla); 250 mg/kg/day (females), based on decreased body weights (3-8%) and body weight gains (14%).
870.5100	Bacterial gene mutation/mammalian activation gene mutation assay	46808240 M: 0, 10, 250, 500 mg/kg/day F:; 0, 10, 125, 250 mg/kg /day	Negative-No evidence of induced mutant colonies over background in the presence or absence of S9-induced activation
870.5300	Gene mutation at the HGPRT locus in Chinese hamster ovary cells	46808238 00, 187.5, 375, 750 1500, 3000 µg/mL	Negative – No evidence of induced mutant colonies over background in the presence or absence of S9-activation.
870.5375	Chromosomal aberration assay in rat lymphocytes	46808237 0, 30, 10, 30, 100, 300, 1000, 3000 µg/mL o	Negative – No evidence of induced mutant colonies over background in the presence or absence of S9-activation
870.5395	Mouse bone marrow micronucleus assay	46808239 0, 1250, 2500, 5000 mg/kg	Negative – No significant increase in the frequency of micronucleated polychromatic erythrocytes in bone marrow
870.6200a	Acute neurotoxicity screening battery (rat)	46808217 0, 200, 1000, 2000 mm/kg	Systemic NOAEL = 1000 mg/kg Systemic LOAEL = 2000 mg/kg, based on decreased body weight gain (21%) and general malaise (slight transient decrease in motor activity, minimal activity in open field, and reactivity) in males. NOAEL = 2000 mg/kg Neurotoxicity LOAEL = Not determined.
870.6200b	Chronic neurotoxicity screening battery (rat)	46808228 0, 10, 125 female only) 250, 500 (male only) mg/kg/day	Systemic NOAEL = 250 mg/kg/day Systemic LOAEL = 500 mg/kg/day, based on decreased body weight (9-15% at 6, 9, and 12 months) and body weight gain in males (61-67% at 3-12 months; 27% at 0-12 months) Neurotoxicity NOAEL = 250 mg/kg (highest dose tested in females). Neurotoxicity LOAEL= Not determined

870.7485	Metabolism and pharmacokinetics (rat)	46808301 46808303 10 and 500 mg/kg	<p>Absorption was rapid and extensive (\approx90-93% at 10 mg/kg; \approx82-86% at 500 mg/kg rats). Peak plasma concentrations (C_{max}) were achieved within 0.5-1 hour. C_{max} in the plasma did not increase proportionally with dose, possibly indicating a saturation of the absorption and/or excretion mechanisms at the high dose. The apparent volume of distribution was increased at the high dose, possibly indicative of increased tissue binding. Total recoveries at 168 hours post-dose were 95.9-100.2%. Elimination was rapid. The administered dose was mostly eliminated within 12 hours in the urine ($>$80% at 10 mg/kg; $>$60% at 500 mg/kg). Total radioactivity found in the urine was approximately 90-92% following single or repeated low-dose treatment, and 81-85% following treatment at 500 mg/kg. Radioactivity in the feces accounted for another 5-7% at 10 mg/kg and 14-17% at 500 mg/kg. Thus, compared to the low dose, excretion of the high dose was slightly slower, and more of the compound was excreted in the feces. At 24 hours, $<$0.5% of the dose was found in expired air. By 24 hours post-dose, plasma levels had declined to $<$0.1 μg eq/g plasma in both sexes at 10 mg/kg and $<$5.0 μg eq/g plasma in both sexes at 500 mg/kg. The highest residue levels were observed in the skin (single dose) and carcass (repeated dose), but the mean recovery of radioactivity in the tissues/carcass at sacrifice was $<$0.6% of the dose. Identified compounds accounted for 87.6-91.6% of the administered dose in each group. In each group, the following compounds were isolated: parent accounted for 77.7-85.0% dose, OH-phenyl-XR-570 accounted for 3.1-9.0% dose, OH-phenyl-XR-570 sulfate conjugate accounted for 2.8-3.7% dose, and 2 unidentified metabolites accounted for \leq0.32% dose. In the high dose, more of the parent was isolated in the feces and less in the urine compared to the low dose. There were no sex-related differences in the metabolism or pharmacokinetics of the test compound. Similarly, the number of doses or the position of the radiolabel generally made no difference in the metabolism and pharmacokinetic profile. test compound. Similarly, the number of doses or the position of the radiolabel generally made no difference in the metabolism and pharmacokinetic profile.</p>
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870.7600	Dermal penetration (rat)	46808304 0.001 or 0.5 mg/ cm ²	In a dermal absorption study in rats, recovery of the applied dose (mass balance) was 100-103%. The majority of the dose was recovered in the skin swab (71-90% of the applied dose). Dermal absorption (based on the sum of residues in urine, feces, cage wash, tissues, residual carcass, and untreated skin) was only 0.13-0.45% of the applied dose and only 10-22% of the applied dose remained in the skin at the application site (considered potentially absorbable). Increasing the dose 200-fold resulted in only approximately 2-fold increase in absorption. Absorption increased 44% at 48 h and 61% at 72 h compared to 24 h in the low dose groups; however, a time-dependent increase in absorption was not evident in the high dose groups. The absorbed dose was almost completely excreted in the urine at the low dose, but was found primarily in the urine, cage wash, and untreated skin at the high dose. The amount of radioactivity at the treatment site increased at 48 hours in the low dose, but did not decrease within 72 hours at either dose, suggesting that the compound in the skin was not readily absorbable.
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10. FQPA Hazard Considerations EPA has determined that reliable data show that it would be safe for infants and children to reduce the FQPA safety factor to 1X. That decision is based on the following findings:

- i. The toxicology database is complete.
- ii. There are no residual uncertainties concerning pre- and postnatal toxicity.
- iii. There are no registered or proposed uses of florasulam which would result in residential exposure.
- iv. There are no residual uncertainties identified in the exposure databases. [The dietary food exposure assessments were performed based on 100% crop treated (CT) and tolerance-level residues for all proposed commodities. By using this screening-level assessment, the acute and chronic exposures/risks will not be underestimated. The dietary drinking water assessment (unrefined estimates) utilizes values generated by model and associated modeling parameters which are designed to provide conservative, health protective, high-end estimates of water concentrations.

11. Toxicological Endpoints: A summary of the toxicological endpoints and doses chosen for the relevant exposure scenarios for dietary and occupational human health risk assessments is provided in the table below. The conventional interspecies

extrapolation (10X) and intraspecies variation (10X) uncertainty factors were applied for all exposure scenarios. As stated above, the FQPA SF for increased susceptibility was reduced to 1X for all exposures scenarios. A summary of the toxicological endpoints are shown below in Table 4:

Table 4 -- Summary of Toxicological Doses and Endpoints for Florasulam for Use in Human Health Risk Assessments

Exposure/ Scenario	Dose Use in Risk Assessment	Uncertainty/ FQPA Safety Factors	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Acute Dietary (General Population, including Infants and Children)	N/A	N/A	N/A	<u>The risk assessment was not conducted.</u> The effects observed in an acute neurotoxicity study were seen at a very high dose (2000 mg/kg/day) that is considered not applicable to human exposure.
Acute Dietary (Females 13-49 years of age)	N/A	N/A	N/A	<u>No appropriate endpoint identified.</u>
Chronic Dietary (All Populations)	NOAEL = 5 mg/kg/day	UF _A = 10X UF _H = 10X FQPA SF = 1X	Chronic RfD = 0.05 mg/kg/day cPAD = 0.05 mg/kg/day	<u>Chronic toxicity – dogs</u> LOAEL = 50 mg/kg/day, based on decreased body weights (17%), body weight gains (68%), and food consumption in the females; adverse liver alterations; slight vacuolation of the zona reticularis and zona fasciculata in the adrenal gland (fatty change) in both sexes.
Cancer (oral, dermal, inhalation)	“Not Likely to be Carcinogenic to Humans”			
Short-term (1-30 days)	N/A	N/A Dermal	N/A	<u>The risk assessment was not conducted</u> 28-day dermal toxicity study – rats LOAEL = not determined, no systemic effect up to the limit dose of 1000 mg/kg/day.
Inhalation Short-term(1-30 days)	NOAEL = 5mg/kg/day IAF=100%	UF _A = 10X UF _H = 10X FQPA SF = 1X	Residential LOC for MOE = 100	<u>90-day oral toxicity – dogs</u> LOAEL = 50 mg/kg/day, based on increased alkaline phosphatase activity and increased incidence/severity of hepatic vacuolation in both sexes.

B. Dietary Exposure and Risk

- 1. Dietary Exposure from Food:** As to residues in food, EPA relied upon tolerance level residues and assumed 100% crop treated for all commodities for chronic exposures.
- 2. Dietary Exposure from Water:** Chronic dietary drinking water was incorporated directly into the dietary assessment using the chronic concentration for surface water generated by the FIRST model. Modeled estimates of drinking water concentrations were directly entered into the dietary exposure model. For chronic dietary risk assessment, the water concentration value of 1.35×10^{-2} ppb was used to assess the contribution to drinking water.
- 3. Acute Aggregate Risk:** No acute dietary endpoint was identified, therefore, an acute dietary risk assessment was not conducted.
- 4. Chronic Aggregate Risk:** The exposure to florasulam from food and water will utilize less than 1% of the cPAD for the general U.S. population and less than 1% of the cPAD for children 1-2 years old, the most highly exposed population subgroup. Therefore, the chronic aggregate risk associated with the proposed uses of florasulam is not of concern to the general U.S. population or any subgroup.
- 5. Cancer Aggregate Risk:** There were no treatment-related tumors observed in carcinogenicity studies in rats and mice. As a result, a cancer assessment was not conducted. A summary of the chronic dietary exposure analyses are shown in Table 5 below:

Table 5 -- Summary of the Dietary Exposure and Risk to Florasulam

Population Subgroup	cPAD (mg/kg/day)	Exposure (mg/kg/day)	% cPAD
General U.S. Population	0.05	0.000024	<1
All Infants (< 1 year old)	0.05	0.000029	<1
Children 1-2 years old	0.05	0.000054	<1
Children 3-5 years old	0.05	0.000053	<1
Children 6-12 years old	0.05	0.000036	<1
Youth 13-19 years old	0.05	0.000022	<1
Adults 20-49 years old	0.05	0.000020	<1
Females 13-49 years old	0.05	0.000019	<1
Adults 50+ years old	0.05	0.000018	<1

6. Cumulative Risk: Section 408(b)(2)(D)(v) of the FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance, the Agency consider "available information concerning the cumulative effects" of a particular pesticide's residues and "other substances that have a common mechanism of toxicity." Unlike other pesticides for which EPA has followed a cumulative risk approach based on a common mechanism of toxicity, EPA has not made a common mechanism of toxicity finding as to florasulam and any other substances, and florasulam does not appear to produce a toxic metabolite produced by other substances. For the purposes of this tolerance action, EPA has not assumed that florasulam has a common mechanism of toxicity with other substances. For information regarding EPA's efforts to determine which chemicals have a common mechanism of toxicity and to evaluate the cumulative effects of such chemicals, see the policy statements released by EPA's Office of Pesticide Programs concerning common mechanism determinations and procedures for cumulating effects from substances found to have a common mechanism on EPA's website at <http://www.epa.gov/pesticides/cumulative>.

B. Handler and Worker Risk Assessments

- 1. Worker Exposure:** The quantitative exposure/risk assessment developed for handlers is based on the following exposure scenarios: mixing/loading liquid for groundboom; applying liquid for groundboom to wheat, barley, rye, oats, and triticale; mixing/loading liquid for aerial application; applying liquid for aerial application to wheat, barley, rye, oats, and triticale; and flagger. Based on the number of seasonal applications indicated on the product labels, handler exposures are expected to be short-term in duration.

- 2. Risk to Applicators and Mixer Loaders:** There were no adverse systemic or dermal effects seen up to the limit dose tested (1,000 mg/kg/day) in the 28-day dermal toxicity study. Therefore, a quantitative risk assessment for the dermal exposure route was not conducted. All MOEs for inhalation exposures are greater than 100 and therefore below EPA's level of concern. A summary of occupational short-term occupational risks associated with the proposed uses of florasulam are presented in Table 6 below:

Table 6 -- Summary of Short-Term Occupational Exposure and Risk Estimates for Florasulam

Florasulam Scenario	Mitigation	Inhalation Unit Exposure (mg/lb ai)	Application Rate (lb ai/A)	Acres Treated (A/Day)	Daily Dose ^a (mg/kg/day)	Inhalation MOE ^b
Mixer/Loader						
Groundboom	Baseline	0.0012	0.00446	200	0.00001529	330,000
Aerial				1200	0.0000917	54,000
Applicator						
Groundboom	Baseline	0.00074	0.00446	200	0.0000094	530,000
Aerial	Eng. Cont. ^c	0.000068		1200	0.0000052	960,000
Flagger						
Aerial	Baseline	0.011	0.00446	350	0.000245	20,000

a. Inhalation Dose (mg/kg/day) = [Rate (lb ai/A) x UE (mg /lb ai) x Acres Treated (A/day)] / BW (70 kg)

b. Inhalation MOE = [Inhalation NOAEL (5 mg/kg/day)] / Inhalation Dose (mg/kg/day)

- 3. Risk to Postapplication Handlers:** A dermal non-cancer agricultural postapplication exposure assessment was not conducted due to the absence of systemic toxicity in the dermal toxicity study. Postapplication inhalation exposures are expected to be minimal and less than the application exposures. As all scenarios are for outdoor agricultural uses, inhalation postapplication exposure is expected to be negligible.
- 4. Residential Exposure:** Currently there are no proposed residential uses for florasulam.

V. ENVIRONMENTAL RISK ASSESSMENT

- A. Environmental Fate Characterization:** Florasulam is a very mobile compound that is not persistent in aerobic soil, rapidly degrading to the major degradate 5-OH-XDE-570, which is in turn more slowly biodegraded to other degradates and eventually to CO₂ and bound residues. Florasulam is not significantly degraded by abiotic processes. It readily degrades in aquatic systems, where it is biotransformed to 5-OH-XDE-570, which is then slowly further biotransformed in some aerobic systems, but stable in other aerobic systems and in anaerobic systems. The degradate 5-OH-XDE-570 is more mobile in soil than the parent compound. Persistence or accumulation of the parent compound is not expected in the field based on laboratory soil studies and terrestrial field dissipation studies. The persistence and accumulation of 5-OH-XDE-570 is more variable than that of the parent, indicating it may persist at some sites, but not others. Submitted data indicate that the parent compound has a very low potential to bioaccumulate in aquatic organisms.

There is a potential for florasulam to reach surface water through spray drift and for both the parent compound and 5-OH-XDE-570 to reach surface water through runoff or subsurface flow, although this will be somewhat decreased for the parent due to its rapid biodegradation in aerobic soil. For 5-OH-XDE-570, the potential to reach surface water through runoff is greater than for the parent due to its slower biotransformation in aerobic soil and higher water solubility. For both compounds, the potential to reach surface water through runoff will be reduced by any leaching that occurs in the field.

Based on the results of laboratory and field studies, in which leaching was observed, both florasulam and 5-OH-XDE-570 have the potential to leach to groundwater. However, for the parent, the potential to leach downward and to reach groundwater will be somewhat reduced by the fairly rapid biotransformation of the parent in aerobic soil. For 5-OH-XDE-570, the potential to leach is greater than that of the parent due to its slower biotransformation in aerobic soil and higher water solubility. For either compound, both of which partition mainly to the water phase, the potential to leach will be greater when there is excessive rainfall or irrigation, particularly if either of these occur close to the time of application. These concerns have also been identified in the Canadian and EU risk assessments for florasulam.

To address concerns with the potential leaching of florasulam that may result in groundwater contamination, label language will be required in the form of ground water advisories. This label language is described in more detail in Section V of the memo.

B. Exposure Characterization: Florasulam is considered practically nontoxic on an acute exposure basis to aquatic and terrestrial wildlife. There was 40%, 60% and 100% mortality at the three highest treatment levels in the avian acute oral study. There were no mortalities at the 175, 292 or 486 mg/kg treatment levels, but sublethal effects were noted at all but the lowest dose tested. No effects were observed in the avian subacute dietary or avian reproduction studies. No effects were reported in the acute rat study. Sublethal effects on weight gain were observed in the two-generation rat reproduction study at the highest treatment level. Some mortality (<20%) was observed in the contact and oral bee studies at 100 ug/bee. No adverse effects attributable to florasulam were observed in the contact and oral bee studies at 100 ug/bee. No adverse effects attributable to florasulam were observed in acute and chronic studies with fish and aquatic invertebrates. As expected with an herbicide, effects were observed in both aquatic and terrestrial plant studies.

C. Potential Risks to Non-Target Organisms: The baseline risk assessment that indicates potential risk exists to terrestrial plants. The use of florasulam according to label direction should not result in direct acute or chronic effects to aquatic or terrestrial wildlife. Based on the submitted studies, the RQs for direct effects to aquatic vascular and nonvascular plants are also below the level of concern. Adverse effects on sensitive terrestrial plant species cannot be precluded at distances of greater than 900 feet from the edge of the field. Indirect effects to terrestrial or aquatic wildlife cannot be ruled out due to the potential for florasulam to effect changes in plant populations which may lead to changes in food supply or habitat.

The Agency's strategy to mitigate these risks involves label language that is intended to keep the pesticide on the intended treatment area, and therefore reducing the potential for exposure to non-target plants. For example, spray drift management language will be required on the labeling, which advises users of applicator responsibilities and offers specific techniques to reduce the possibility of spray drift.

VI. REGULATORY DECISION

A. Conditional Registration: A conditional registration is issued for florasulam for use as a selective herbicide for control of broadleaf weeds in wheat, barley, oats, rye and triticale.

1. Conditional Data: A seedling emergence study (850.4100) with the major degradate, 5-OH-XDE750 is required.

2. Public Interest Finding: A conditional registration under FIFRA Section 3(c)(7)(C) may be granted only if EPA determines that use of the pesticide during such period will not cause any unreasonable adverse effect on the environment, and that use of the pesticide is in the public interest.

B. Tolerances: Tolerances are established for residues of florasulam in or on barley, grain at 0.01 ppm, barley, hay at 0.05 ppm, barley straw at 0.05 ppm, oat, grain at 0.01 ppm, oat, forage at 0.05 ppm, oat, hay at 0.05 ppm, oat, straw at 0.05 ppm, rye, grain at 0.01 ppm, rye, forage at 0.05 ppm, rye, straw at 0.05 ppm, wheat, grain at 0.01 ppm, wheat, forage at 0.05 ppm, wheat, hay at 0.05 ppm, wheat, straw at 0.05 ppm.

C. Required Environmental Label Statements: End use products containing florasulam as an active ingredient will be required to add the following protective language on the product labeling:

1. Environmental Hazards: “Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.”

2. Ground Water Advisory: “This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.”

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DISCLAIMER: The information presented in this Pesticide Fact Sheet is for informational purposes only and may not be used to fulfill data requirements for pesticide registration and reregistration.

Bibliography

71-1 Avian Single Dose Oral Toxicity

MRID	Citation Reference
46808305	Campbell, S.; Beavers, J. (1994) XDE-570: An Acute Oral Toxicity Study with the Japanese Quail. Project Number: 103/403, ES/2799. Unpublished study prepared by Wildlife International, Ltd. 31 p.

71-2 Avian Dietary Toxicity

MRID	Citation Reference
46808307	Helsten, B.; Solatycki, A. (1994) XDE-570 Herbicide: 8-Day Acute Dietary LC50 Study in Mallard Ducklings. Project Number: 128/005/02, ES/2796. Unpublished study prepared by Bio-Life Associates. 32 p.
46827920	Helsten, B.; Solatycki, A. (1994) XDE-570 Herbicide: 8-Day Acute Dietary LC50 Study in Japanese Quail. Project Number: 128/004/01. Unpublished study prepared by Bio-Life Associates. 32 p.

71-4 Avian Reproduction

MRID	Citation Reference
46808308	Gallagher, S.; Beavers, J.; Jaber, M. (1995) XDE-570: A Reproduction Study with the White Northern Bobwhite (<i>Colinus virginianus</i>). Project Number: 103/411, DECO/ES/2911, ES/2908. Unpublished study prepared by Wildlife International, Ltd. 178 p.
46808309	Gallagher, S.; Beavers, J.; Jaber, M. (1995) XDE 570: A Reproduction Study with the Mallard (<i>Anas platyrhynchos</i>). Project Number: 103/412, DECO/ES/2912, ES/2911. Unpublished study prepared by Wildlife International, Ltd. 180 p.

72-1 Acute Toxicity to Freshwater Fish

MRID	Citation Reference
------	--------------------

46808312	Kirk, H.; Miller, J.; Hugo, J. (1996) Evaluation of the Acute Toxicity of 5-Hydroxy XDE-570 to the Rainbow Trout, <i>Oncorhynchus mykiss</i> Walbaum. Project Number: DECO/ES/3118. Unpublished study prepared by The Dow Chemical Co. 43 p.
46808313	Jenkins, C. (1996) EF-1343: Acute Toxicity to Rainbow Trout: Final Report. Project Number: DES/345, 96/DES345/0351, MA130/DES345. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 42 p.
46843804	Kirk, H.; Miller, J.; Hugo, J.; et. al. (1995) Evaluation of the Acute Toxicity of XDE-570 Herbicide to the Bluegill, <i>Lepomis macrochirus</i> Rafinesque. Project Number: DECO/ES/2939. Unpublished study prepared by Dow Chemical, USA. 30 p.
46843805	Kirk, H.; Miller, J.; Hugo, J.; et. al. (1995) Evaluation of the Acute Toxicity of XDE-570 Herbicide to the Rainbow Trout, <i>Oncorhynchus mykiss</i> Walbaum. Project Number: DECO/ES/2940. Unpublished study prepared by Dow Chemical, USA. 30 p.

72-2 Acute Toxicity to Freshwater Invertebrates

MRID	Citation Reference
46808314	Kirk, H.; Landre, A.; Hugo, J. (1996) Evaluation of the Acute Toxicity of 5-Hydroxy XDE-570 to the Daphnid, <i>Daphnia magna</i> Straus. Project Number: DECO/ES/3117. Unpublished study prepared by The Dow Chemical Co. 40 p.
46808315	Jenkins, C. (1996) EF-1343: Acute Toxicity to <i>Daphnia magna</i> : Final Report. Project Number: 96/DES346/0352, DES/346, MA130/DES346. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 44 p.
46808316	Kirk, H.; Marino, T. (1998) Toxicity of Metabolites of XDE-570 to <i>Daphnia magna</i> . Project Number: 981157. Unpublished study prepared by The Dow Chemical Co. 20 p.

72-3 Acute Toxicity to Estuarine/Marine Organisms

MRID	Citation Reference
46808317	Ward, T.; Magazu, J.; Boeri, R. (1995) XDE-570: Acute Toxicity to the Silverside, <i>Menidia beryllina</i> . Project Number: 645/DO, ES/2924. Unpublished study prepared by T.R. Wilbury Laboratories, Inc. 24 p.
46808318	Ward, T.; Magazu, J.; Boeri, R. (1995) XDE-570: Acute Toxicity to the Grass

Shrimp, *Palaemonetes pugio*. Project Number: 643/DO, ES/2922. Unpublished study prepared by T.R. Wilbury Laboratories, Inc. 24 p.

46808319 Ward, T.; Magazu, J.; Boeri, R. (1995) XDE-570: Acute Flow-Through Mollusk Shell Deposition Test. Project Number: 644/DO, ES/2923. Unpublished study prepared by T.R. Wilbury Laboratories, Inc. 24 p.

46808331 Boeri, R.; Magazu, J.; Ward, T. (1994) XDE-570 Herbicide: Acute Toxicity to the Earthworm, *Eisenia foetida*. Project Number: 464/DO, ES/2798, 207. Unpublished study prepared by T.R. Wilbury Laboratories, Inc. 24 p.

72-4 Fish Early Life Stage/Aquatic Invertebrate Life Cycle Study

MRID	Citation Reference
46808321	Kirk, H.; Landre, A.; Hugo, J.; et. al. (1996) Evaluation of the Chronic Toxicity of XDE-570 Herbicide to the Daphnid, <i>Daphnia magna</i> Straus. Project Number: DECO/ES/2944. Unpublished study prepared by The Dow Chemical Co. 90 p.
46843806	Kirk, H.; Landre, A.; Massaro, L.; et. al. (1995) Evaluation of the Acute Toxicity of XDE-570 Herbicide to the Daphnid, <i>Daphnia magna</i> Straus. Project Number: DECO/ES/2938. Unpublished study prepared by Dow Chemical, USA. 33 p.

81-1 Acute oral toxicity in rats

MRID	Citation Reference
46806803	Haut, K.; Brooks, K. (1997) DE-570 50g/L SC Herbicide: Acute Oral Toxicity Study in Fischer 344 Rats. Project Number: 971064. Unpublished study prepared by The Dow Chemical Co. 28 p.
46806804	Haut, K.; Brooks, K. (1997) DE-570 50g/L SC Herbicide: Acute Oral Toxicity Study in CD-1 Mice. Project Number: 971063. Unpublished study prepared by The Dow Chemical Co. 28 p.
46808209	Gilbert, K.; Yano, B. (1995) XDE-570: Acute Oral Toxicity Study in Fischer 344 Rats. Project Number: DR/0312/6565/012A. Unpublished study prepared by The Dow Chemical Co. 56 p.
46827915	Brooks, K. (1997) XDE-570: Acute Oral Toxicity Study in CD-1 Mice. Project Number: 971070, 971070A. Unpublished study prepared by Dow Chemical, USA. 39 p.

81-2 Acute dermal toxicity in rabbits or rats

MRID**Citation Reference**

46808211	Gilbert, K. (1995) XDE-570: Acute Dermal Toxicity Study in New Zealand White Rabbits. Project Number: DR/0312/6565/012D. Unpublished study prepared by The Dow Chemical Co. 27 p.
----------	---

81-3 Acute inhalation toxicity in rats**MRID****Citation Reference**

46808212	Clements, C.; Cieszlak, F. (1995) XDE-570: Acute Aerosol Inhalation Toxicity Study with Fischer 344 Rats. Project Number: DR/0312/6565/015. Unpublished study prepared by THE Dow Chemical Co. 34 p.
----------	--

81-4 Primary eye irritation in rabbits**MRID****Citation Reference**

46806806	Haut, K.; Brooks, K. (1997) DE-570 50g/L SC Herbicide: Acute Primary Eye Irritation Study in New Zealand White Rabbits. Project Number: 971065. Unpublished study prepared by The Dow Chemical Co. 16 p.
46808213	Gilbert, K. (1995) XDE-570: Primary Eye Irritation Study in New Zealand White Rabbits. Project Number: DR/0312/6565/012C. Unpublished study prepared by Dow Chemical, USA. 16 p.

81-5 Primary dermal irritation**MRID****Citation Reference**

46808214	Gilbert, K. (1995) XDE-570: Primary Dermal Irritation Study in New Zealand White Rabbits. Project Number: DR/0312/6565/012B. Unpublished study prepared by The Dow Chemical Co. 16 p.
----------	---

81-6 Dermal sensitization**MRID****Citation Reference**

46808215	Gilbert, K. (1995) XDE-570: Dermal Sensitization Potential in the Hartley
----------	---

Albino Guinea Pig. Project Number: DR/0312/6565/012E. Unpublished study prepared by The Dow Chemical Co. 18 p.

46808216 Johnson, I. (1996) XDE-570: Skin Sensitization in the Guinea Pig. Project Number: DWC/738/962306/SS, DWC/738. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 43 p.

81-8 Acute neurotoxicity screen study in rats

MRID	Citation Reference
46808217	Mattsson, J.; McGuirk, R.; Yano, B. (1997) XDE-570: Acute Neurotoxicity Study in Fischer 344 Rats. Project Number: DR/0312/6565/022. Unpublished study prepared by The Dow Chemical Co. 477 p.

82-1 Subchronic Oral Toxicity: 90-Day Study

MRID	Citation Reference
46808219	Redmond, J.; Johnson, K. (1996) XDE-570: 13-Week Dietary Toxicity and 4-Week Recovery Study in F344 Rats. Project Number: DR/0312/6565/011, DR/0312/6565/011A. Unpublished study prepared by The Dow Chemical Co. 509 p.
46808222	Redmond, J.; Johnson, K. (1996) XDE-570: 13-Week Dietary Toxicity Study in B6C3F1 Mice. Project Number: DR/0312/6565/010. Unpublished study prepared by The Dow Chemical Co. 350 p.
46808223	Stebbins, K. (1997) Amended Report for XDE-570: Thirteen-Week Dietary Toxicity Study in Beagles. Project Number: DR/0312/6565/021, TI94/069, 236. Unpublished study prepared by The Dow Chemical Co. 171 p.
46808224	Dalgard, D. (1995) XDE-570: Palatability Study in Beagle Dogs: Final Report. Project Number: CHV/174/154, DR/0312/6565/009. Unpublished study prepared by Corning Hazleton, Inc. 47 p.
46827917	Liberacki, A.; Johnson, K.; Breslin, W. (1996) XDE-570: 13-Week Dietary Probe Study in CD Rats. Project Number: DR/0312/6565/025. Unpublished study prepared by Dow Chemical, USA. 157 p.
46827918	Szabo, J.; Davis, N. (1992) XR-570: Two-Week Repeated Dose Dietary Toxicity Study in B6C3F1 Mice. Project Number: DR/0312/6565/002. Unpublished study prepared by Dow Chemical U.S.A. 88 p.
46843601	Szabo, J.; Davis, N. (1993) XR-570: Two-Week Repeated Dose Dietary Toxicity Study in Fischer 344 Rats. Project Number: TXT/DR/0312/6565/003,

DR/0312/6565/003. Unpublished study prepared by Dow Chemical U.S.A. 92 p.

82-2 21-day dermal-rabbit/rat

MRID	Citation Reference
46808225	Scortichini, B.; Kociba, R. (1997) XDE-570: 28-Day Repeated Dose Dermal Toxicity Study in Fischer 344 Rats. Project Number: 971042. Unpublished study prepared by The Dow Chemical Co. 235 p.
46808226	Kociba, R.; Zablony, C. (1998) EF-1343 (XDE-570 50 SC): 4-Week Repeated Dose Dermal Toxicity Study in Fischer 344 Rats. Project Number: 980016. Unpublished study prepared by Dow Chemical, USA. 275 p.

83-1 Chronic Toxicity

MRID	Citation Reference
46808227	Sullivan, J.; Singleton, N. (1995) XDE-570: Exploratory Four-Week Dietary Toxicity Study in Beagles. Project Number: DR/0312/6565/018. Unpublished study prepared by the Dow Chemical Company. 60 p.
46808228	Shankar, M.; Johnson, K. (1996) XDE-570: Chronic Neurotoxicity Study in Fischer 344 Rats. Project Number: DR/0312/6565/019N. Unpublished study prepared by The Dow Chemical Co. 618 p.
46808229	Stebbins, K.; Haut, K. (1997) XDE-570: One Year Dietary Toxicity Study in Beagle Dogs. Project Number: 960018. Unpublished study prepared by The Dow Chemical Co. 419 p.

83-2 Oncogenicity

MRID	Citation Reference
46808230	Quast, J.; Haut, K.; Kociba, R. (1997) XDE-570: Two Year Oncogenicity in B6C3F1 Mice. Project Number: 96006, DR/0312/6565/020, 33674. Unpublished study prepared by The Dow Chemical Co. 2220 p.

83-3 Teratogenicity -- 2 Species

MRID	Citation Reference
------	--------------------

46808231	Liberacki, A.; Breslin, W.; Stebbins, K. (1996) XDE-570: Oral Gavage Teratology Probe Study CD Rats. Project Number: DR/0312/6565/024, DR/0312/6565/024F, DR/0312/6565/024A. Unpublished study prepared by The Dow Chemical Co. 92 p.
46808232	Zablotny, C.; Quast, J. (1996) XDE-570: Oral Gavage Teratology Probe Study in New Zealand White Rabbits. Project Number: DR/0312/6565/023, 960014. Unpublished study prepared by The Dow Chemical Co. 100 p.
46808233	Zablotny, C.; Carney, E. (1997) XDE-570: Oral Gavage Teratology Study in New Zealand White Rabbits. Project Number: 960022. Unpublished study prepared by The Dow Chemical Co. 263 p.
46808234	Liberacki, A.; Carney, E. (1997) XDE-570: Oral Gavage Teratology Study in CD Rats. Project Number: DR/0312/6565/027. Unpublished study prepared by The Dow Chemical Co. 258 p.

83-4 2-generation repro.-rat

MRID	Citation Reference
46808235	Liberacki, A.; Carney, E.; Kociba, R. (1997) XDE-570: Two-Generation Dietary Reproduction Study in CD Rats. Project Number: 960030, DR/0312/6565/028P1, R550425. Unpublished study prepared by The Dow Chemical Co. 2234 p.

83-5 Dietary: Combined Chronic Toxicity/Oncogenicity Studies

MRID	Citation Reference
46808236	Johnson, K.; Haut, K.; Stebbins, K. (1997) XDE-570: Two-Year Chronic Toxicity/Oncogenicity Study in Fischer 344 Rats. Project Number: 96004, DR/0312/6565/019. Unpublished study prepared by Dow Chemical, USA. 2896 p.

84-2 Intreraction with Gonadal DNA

MRID	Citation Reference
46808237	Linscombe, V.; Okowit, D.; Kropscott, B. (1995) Evaluation of XDE-570 in an In Vitro Chromosomal Aberration Assay Utilizing Rat Lymphocytes. Project

Number: DR/0312/6565/007. Unpublished study prepared by The Dow Chemical Co. 43 p.

- 46808238 Linscombe, V.; Okowitt, D.; Kropscott, B. (1995) Evaluation of XDE-570 in the Chinese Hamster Ovary Cell/Hypoxanthine-Guanine-Phosphoribosyl Transferase (CHO/HGPRT) Forward Mutation Assay. Project Number: DR/0312/6565/006, 33674. Unpublished study prepared by The Dow Chemical Co. 40 p.
- 46808239 Lick, S.; Gollapudi, B.; Kropscott, B. (1995) Evaluation of XDE-570 in the Mouse Bone Marrow Micronucleus Test. Project Number: DR/0312/6565/013. Unpublished study prepared by Dow Chemical, USA. 45 p.
- 46808240 Lawlor, T. (1995) Mutagenicity Test on XDE-570 in the Salmonella/Mammalian-Microsome Reverse Mutation Assay (AMES Test) Preincubation Method With A Confirmatory Assay. Project Number: 16246/0/422R, DR/0312/6565/016. Unpublished study prepared by Corning Hazleton, Inc. 39 p.

85-1 General metabolism

MRID	Citation Reference
46808301	Dryzga, M.; Stewart, H.; Hansen, S.; et. al. (1996) XR-570P: Tissue Distribution and Metabolism of (Carbon 14)-Labeled XR-570 in Fischer 344 Rats. Project Number: DR/0312/6565/014, HET/DR/0312/65665/014, 87/302. Unpublished study prepared by The Dow Chemical Co. 130 p.
46808303	Hansen, S. (1997) XDE-570: Distribution and Metabolism of (Carbon 14)-Labeled XDE-570 in Selected Tissues at Plasma Cmax and C1/2max and in Bile Following Oral Administration in Fischer 344 Rats. Project Number: HET/DR/0312/6565/029, 87/302. Unpublished study prepared by The Dow Chemical Co. 121 p.
46808304	Bounds, S. (1997) XDE-570: Dermal Absorption of [(Carbon 14)]-XDE-570 in Male Fischer 344 Rats Following Exposure to Undiluted EF-1343 and a Spray Solution: Final Report. Project Number: DWC/891, DWC891/972958. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 195 p.
46843803	Watson, D. (1995) Certificate of Analysis XDE-570 Confirmation of the Identity of an Isolated Soil Degradate of XDE-570 Using Liquid Chromatography - Mass Spectrometry. Project Number: DWC/723/950881, 8U. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 29 p.

123-1 Seed germination/seedling emergence and vegetative vigor

MRID**Citation Reference**

46808324 Cordes, R. (1998) The Effects of DE-570 on the Emergence and Vegetative Vigor of Non-Target Terrestrial Plants (Tier II Study). Project Number: ENV98072. Unpublished study prepared by Dow Agrosiences LLC. 216 p.

123-2 Aquatic plant growth**MRID****Citation Reference**

46808325 Hughes, J.; Williams T.; Conder, L. (1995) The Toxicity of XDE-570 to *Skeletonema costatum*. Project Number: 10/03/1, DECO/ES/3021. Unpublished study prepared by Carolina Ecotox, Inc. 73 p.

46808326 Milazzo, D.; Kirk, H.; Hugo, J.; et. al. (1995) The Toxicity of XDE-570 Herbicide (N-(2,6-difluoro-5-Methoxy-(1,2,4)-triazolo-(1,5c)-pyrimidine-2-sulfonamide) to the Aquatic Plant, Duckweed, *Lemna gibba* L. G-3. Project Number: ES/2988. Unpublished study prepared by Dow Chemical Co. 58 p.

46808327 Milazzo, D.; Landre, A.; Rick, D.; *et. al. (1995) XDE-570 Herbicide: The Toxicity to the Blue-Green Algae, *Anabaena flos-aquae*. Project Number: ES/3005, 33674. Unpublished study prepared by The Dow Chemical Co. 47 p.

46808328 Milazzo, D.; Landre, A.; Hugo, J.; et. al.; (1996) XDE-570 Herbicide: The Toxicity to the Freshwater Diatom, *Navicula pelliculosa*. Project Number: ES/3045. Unpublished study prepared by Dow Chemical Co. 47 p.

46808329 Milazzo, D.; Hugo, J.; McFadden, L. (1996) XDE-570 5-Hydroxy: The Toxicity to the Freshwater Green Alga, *Selenastrum capricornutum* Printz. Project Number: ES/3115. Unpublished study prepared by The Dow Chemical Co. 46 p.

141-1 Honey bee acute contact**MRID****Citation Reference**

46808330 Palmer, S.; Beavers, J. (1994) XDE-570: An Acute Contact Toxicity Study with the Honey Bee. Project Number: DECO/ES/2819, 103/407. Unpublished study prepared by Wildlife International, Ltd. 20 p.

161-1 Hydrolysis**MRID****Citation Reference**

46808130	Jackson, R.; Portwood, D. (1993) The Aqueous Hydrolysis of XR-570. Project Number: GHE/P/3326. Unpublished study prepared by Dowelanco Ltd. 35 p.
46827909	Phillips, M. (1996) The Determination of the Hydrolytic Stability of Radiolabelled XDE-570. Project Number: 12536, 386209. Unpublished study prepared by Inveresk Research International. 99 p.

161-2 Photodegradation-water

MRID	Citation Reference
46808132	Yoder, R. (1996) Aqueous Photolysis of XDE-570 in Natural Sunlight. Project Number: ENV95023. Unpublished study prepared by Dowelanco North American Environmental. 96 p.
46808133	Gibson, R. (1997) Degradation of DE-570 in a Natural Lake Water. Project Number: GHE/P/6732, E97/060. Unpublished study prepared by Dowelanco Ltd. 28 p.

161-3 Photodegradation-soil

MRID	Citation Reference
46808134	Krieger, M.; Yoder, R. (1996) Photolysis of XDE-570 on Soil. Project Number: ENV95083. Unpublished study prepared by Dowelanco North American Environmental. 129 p.

162-1 Aerobic soil metabolism

MRID	Citation Reference
46808135	Jackson, R.; Ghosh, D. (1997) The Aerobic Degradation of XDE-570 in Soil. Project Number: GHE/P/4710, 3U. Unpublished study prepared by Dowelanco Ltd. 171 p.
46808136	Pillar, F. (1997) Effects of Temperature on the Degradation of DE-570 in Soil. Project Number: E97/002, GHE/P/6749. Unpublished study prepared by Dowelanco Ltd. 80 p.
46808137	Pillar, F. (1997) Effects of Moisture on the Degradation of DE-570 in Soil. Project Number: E97/003, GHE/P/6750. Unpublished study prepared by

Dowelanco Ltd. 80 p.

46808138 Krieger, M.; Ostrander, J.; Gilbert, J. (1997) The Aerobic Degradation of XDE-570 on Two Soils. Project Number: ENV96043. Unpublished study prepared by Dowelanco North American Environmental. 80 p.

46808139 Jackson, R.; Paterson, G. (1998) The Aerobic Degradation of XDE-570 in Two North American Soils. Project Number: GHE/P/4711, 4U. Unpublished study prepared by Dowelanco Ltd. 83 p.

162-2 Anaerobic soil metabolism

MRID	Citation Reference
46808140	Cleveland, C.; Sanders, L.; Gilbert, J. (1997) Anaerobic Aquatic Metabolism Study of XDE-570. Project Number: ENV95137. Unpublished study prepared by Dowelanco North American Environmental. 104 p.

162-3 Anaerobic aquatic metab.

MRID	Citation Reference
46808140	Cleveland, C.; Sanders, L.; Gilbert, J. (1997) Anaerobic Aquatic Metabolism Study of XDE-570. Project Number: ENV95137. Unpublished study prepared by Dowelanco North American Environmental. 104 p.

162-4 Aerobic aquatic metab.

MRID	Citation Reference
46808143	Jackson, R. (1998) The Identification and Characterisation of DE-570 Metabolites from a Sediment/Water Study. Project Number: GHE/P/7366, E98/051. Unpublished study prepared by Dowelanco North American Environmental. 47 p.
46827910	Phillips, M. (1997) The Aerobic Degradation of Radiolabelled XDE-570 in Natural Waters and Associated Sediments. Project Number: 12712, 385362. Unpublished study prepared by Inveresk Research International. 116 p.
46827911	Yoder, R.; Gilbert, J. (1997) Aerobic Aquatic Metabolism of DE-570 in a Canadian Sediment and Water System. Project Number: ENV96088. Unpublished study prepared by Dowelanco North American Environmental. 89 p.

163-1 Leach/adsorp/desorption

MRID	Citation Reference
46808145	Pillar, F. (1997) The Sorption of XDE-570 in Soil. Project Number: GHE/P/6325R, E97/001, GHE/P/6325. Unpublished study prepared by Dowelanco Ltd. 54 p.
46808146	Huskin, M. (1997) The Aged Leaching of (Carbon 14)-XDE-570 in a Canadian Soil. Project Number: ENV96042. Unpublished study prepared by Dowelanco North American Environmental. 100 p.
46827912	Ostrander, J. (1996) Mobility Studies of XDE-570 and 5-Hydroxy-XDE-570. Project Number: ENV95020. Unpublished study prepared by Dowelanco North American Environmental. 111 p.
46843801	Pillar, F. (1997) The Non-Aged Column Leaching of DE-570. Project Number: E97/006, GHE/P/6785. Unpublished study prepared by Dowelanco Ltd. 39 p.

164-1 Terrestrial field dissipation

MRID	Citation Reference
46808148	Maycock, R. (1997) The Dissipation of XDE-570 and its 5-Hydroxy Metabolite in Soil at Intervals Following a Single Application of EF-1343, Northern France - 1995. Project Number: GHE/P/6367, RL95/055, 295/56. Unpublished study prepared by Dowelanco Ltd, DowElanco SA and Covance Laboratories, Ltd. 113 p.
46808149	Maycock, R. (1997) The Dissipation of XDE-570 and its 5-Hydroxy Metabolite in Soil at Intervals Following a Single Application of EF-1343, Southern France - 1996. Project Number: GHE/P/6369, R96/098, 295/071. Unpublished study prepared by Dowelanco Ltd, DowElanco SA and Covance Laboratories, Ltd. 104 p.
46808150	Maycock, R. (1997) The Dissipation of XDE-570 and its 5-Hydroxy Metabolite in Soil at Intervals Following a Single Application of EF-1343, UK - 1996. Project Number: GHE/P/6368, R96/001, 295/070. Unpublished study prepared by Dowelanco Ltd, Dow AgroSciences Limited and Dow Agrosciences Europe. 111 p.
46808201	Maycock, R. (1997) The Dissipation of XDE-570 and Its 5-Hydroxy Metabolite in Soil at Intervals Following a Single Application of EF-1343, Germany, 1995-1996. Project Number: GHE/P/6366, RF95/053, RL95/053. Unpublished study prepared by Dowelanco Ltd, DowElanco GmbH and DowElanco GmbH. 105 p.

- 46808202 Maycock, R. (1997) The Dissipation of XDE-570 and Its 5-Hydroxy Metabolite in Soil at Intervals Following a Single Application of EF-1343, Greece-1996. Project Number: GHE/P/6370, RF96/147, 295/072. Unpublished study prepared by Dowelanco Ltd, Covance Laboratories, Ltd. and Chemex International plc. 125 p.
- 46808203 Maycock, R. (1997) The Dissipation of XDE-570 and its 5-Hydroxy Metabolite in Soil at Intervals Following a Single Application of EF-1342, UK - 1995. Project Number: GHE/P/6781, R95/054, 295/55. Unpublished study prepared by Dowelanco Ltd, Dow AgroSciences Limited and Covance Laboratories, Ltd. 119 p.
- 46808205 Yeh, L. (1998) Residue Method Validation Report for the Determination of DE-570 (Florasulam) and the 5-Hydroxy Florasulam Degradate in Soil by Capillary Gas Chromatography with Mass Selective Detection. Project Number: RES97082, GRM/98/03, 98/03. Unpublished study prepared by Dow AgroSciences LLC. 61 p.
- 46808206 Bormett, G.; Harris, M.; Foster, D.; et. al. (1999) Field Dissipation of DE-570 in North America: Amended Report. Project Number: ENV96003. Unpublished study prepared by: DOW AGROSCIENCES LLC and Ag-Quest Inc. and Agvise Inc.. 460 p.
- 46808207 Richter, M. (2006) Independent Laboratory Validation of Dow AgroSciences LLC Method GRM 05.19 - Determination of Residues of XDE-742 and Its Metabolites in Drinking Water, Ground Water, and Surface Water by Liquid Chromatography with Tandem Mass Spectrometry Detection. Project Number: 060006, P/1001/G, GRM/05/19. Unpublished study prepared by PTRL Europe GmbH. 52 p.
- 46843802 Gambie, A. (1997) Residues of DE-570 and Its 5-Hydroxy Metabolite in Soil at Normal Harvest Following Application of EF-1343 to Wheat and Barley: - Europe 1995-1996. Project Number: GHE-P-6833. Unpublished study prepared by Dowelanco Ltd. 50 p.

165-1 Confined rotational crop

MRID	Citation Reference
46808208	MacDonald, A. (1997) The Uptake of DXE-570 into Four Succeeding Crops. Project Number: GHE/P/4889, 7U. Unpublished study prepared by Dowelanco Ltd. 85 p.

171-4B Residue Analytical Methods

MRID	Citation Reference
-------------	---------------------------

46808018 Young, D.; Duebelbeis, D. (1998) Residue Method Validation Report for the Determination of Florasulam (proposed) in Grains by Immunoassay. Project Number: RES97041/01. Unpublished study prepared by Dow AgroSciences LLC. 61 p.

171-4C Magnitude of the Residue [by commodity]

MRID	Citation Reference
-------------	---------------------------

46808006	Teasdale, R. (1999) The Stability of DE-570 in Wheat Under Frozen Storage Conditions Over 18 Months (Supplementary Report). Project Number: GHE/P/8203, ST96/001. Unpublished study prepared by Dow AgroSciences LLC. 196 p.
----------	--

171-4A1 Characterization of Total Terminal Residue

MRID	Citation Reference
-------------	---------------------------

46808003	Pillar, F. (1997) The Metabolism of XDE-570 in Winter Wheat. Project Number: 5U, GHE/P/5729. Unpublished study prepared by Dowelanco Ltd. 168 p.
----------	--

171-4A3 Nature of the Residue in Livestock

MRID	Citation Reference
-------------	---------------------------

46827902	Barnekow, D.; Huskin, M. (1994) Nature of the Residue of [(Carbon 14)]XDE-570 in Lactating Goats. Project Number: MET94017, 41502, M/9161. Unpublished study prepared by Dowelanco North American Environmental and Analytical Bio-Chemistry Labs., Inc. 156 p.
----------	---

46827903	Barnekow, D.; Huskin, M. (1994) Nature of the Residue of [(Carbon 14)]XDE-570 in Laying Hens. Project Number: MET94018, 41556, M/9166. Unpublished study prepared by Dowelanco North American Environmental and Analytical Bio-Chemistry Labs., Inc. 141 p.
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830.1550 Product Identity and composition

MRID	Citation Reference
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46806501	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1440, a Suspension Concentrate Manufacturing-Use Product Containing Florasulam. Project Number: NAFST/06/035, EU/AM/98/007. Unpublished study prepared by Dow AgroSciences LLC. 135 p.
46806601	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for GF-184, a Suspension Emulsion End-Use Product Containing Florasulam and Fluroxypyr Meptyl. Project Number: NAFST/06/034, HDHE/C/00030, 10071. Unpublished study prepared by Dow AgroSciences LLC. 155 p.
46806701	Heim, D. (2006) Group A - Product Identity, Composition, and Analysis for GF-1727, a Suspension Emulsion End-Use Product Containing Florasulam and MCPA 2-Ethylhexyl Ester. Project Number: NAFST/06/014, EU/AM/98/007. Unpublished study prepared by Dow Agrosciences LLC. 144 p.
46806801	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1343, a Suspension Concentrate End-Use Product Containing Florasulam. Project Number: NAFST/06/036, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 136 p.
46806901	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1383, a Suspension Emulsion End-use Product Containing Florasulam and 2,4-D 2-Ethylhexyl Ester. Project Number: NAFST/06/033, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 140 p.
46827901	Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.
47166901	Qin, K.; Stock, M. (2007) Group A- Product Identity, Composition and Analysis for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/064. Unpublished study prepared by Dow AgroSciences, LLC. 133 p.

830.1600 Description of materials used to produce the product

MRID	Citation Reference
46806501	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1440, a Suspension Concentrate Manufacturing-Use Product Containing Florasulam. Project Number: NAFST/06/035, EU/AM/98/007. Unpublished study prepared by Dow AgroSciences LLC. 135 p.

- 46806601 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for GF-184, a Suspension Emulsion End-Use Product Containing Florasulam and Fluroxypyr Meptyl. Project Number: NAFST/06/034, HDHE/C/00030, 10071. Unpublished study prepared by Dow AgroSciences LLC. 155 p.
- 46806701 Heim, D. (2006) Group A - Product Identity, Composition, and Analysis for GF-1727, a Suspension Emulsion End-Use Product Containing Florasulam and MCPA 2-Ethylhexyl Ester. Project Number: NAFST/06/014, EU/AM/98/007. Unpublished study prepared by Dow Agrosciences LLC. 144 p.
- 46806801 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1343, a Suspension Concentrate End-Use Product Containing Florasulam. Project Number: NAFST/06/036, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 136 p.
- 46806901 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1383, a Suspension Emulsion End-use Product Containing Florasulam and 2,4-D 2-Ethylhexyl Ester. Project Number: NAFST/06/033, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 140 p.
- 46827901 Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.
- 47166901 Qin, K.; Stock, M. (2007) Group A- Product Identity, Composition and Analysis for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/064. Unpublished study prepared by Dow AgroSciences, LLC. 133 p.

830.1620 Description of production process

MRID	Citation Reference
46827901	Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.

830.1650 Description of formulation process

MRID	Citation Reference
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46806501	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1440, a Suspension Concentrate Manufacturing-Use Product Containing Florasulam. Project Number: NAFST/06/035, EU/AM/98/007. Unpublished study prepared by Dow AgroSciences LLC. 135 p.
46806601	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for GF-184, a Suspension Emulsion End-Use Product Containing Florasulam and Fluroxypyr Meptyl. Project Number: NAFST/06/034, HDHE/C/00030, 10071. Unpublished study prepared by Dow AgroSciences LLC. 155 p.
46806701	Heim, D. (2006) Group A - Product Identity, Composition, and Analysis for GF-1727, a Suspension Emulsion End-Use Product Containing Florasulam and MCPA 2-Ethylhexyl Ester. Project Number: NAFST/06/014, EU/AM/98/007. Unpublished study prepared by Dow Agrosciences LLC. 144 p.
46806801	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1343, a Suspension Concentrate End-Use Product Containing Florasulam. Project Number: NAFST/06/036, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 136 p.
46806901	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1383, a Suspension Emulsion End-use Product Containing Florasulam and 2,4-D 2-Ethylhexyl Ester. Project Number: NAFST/06/033, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 140 p.
47166901	Qin, K.; Stock, M. (2007) Group A- Product Identity, Composition and Analysis for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/064. Unpublished study prepared by Dow AgroSciences, LLC. 133 p.

830.1670 Discussion of formation of impurities

MRID	Citation Reference
46806501	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1440, a Suspension Concentrate Manufacturing-Use Product Containing Florasulam. Project Number: NAFST/06/035, EU/AM/98/007. Unpublished study prepared by Dow AgroSciences LLC. 135 p.
46806601	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for GF-184, a Suspension Emulsion End-Use Product Containing Florasulam and Fluroxypyr Meptyl. Project Number: NAFST/06/034, HDHE/C/00030, 10071. Unpublished study prepared by Dow AgroSciences LLC. 155 p.
46806701	Heim, D. (2006) Group A - Product Identity, Composition, and Analysis for GF-1727, a Suspension Emulsion End-Use Product Containing Florasulam and

MCPA 2-Ethylhexyl Ester. Project Number: NAFST/06/014, EU/AM/98/007. Unpublished study prepared by Dow Agrosciences LLC. 144 p.

- 46806801 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1343, a Suspension Concentrate End-Use Product Containing Florasulam. Project Number: NAFST/06/036, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 136 p.
- 46806901 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1383, a Suspension Emulsion End-use Product Containing Florasulam and 2,4-D 2-Ethylhexyl Ester. Project Number: NAFST/06/033, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 140 p.
- 46827901 Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.
- 47166901 Qin, K.; Stock, M. (2007) Group A- Product Identity, Composition and Analysis for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/064. Unpublished study prepared by Dow AgroSciences, LLC. 133 p.

830.1700 Preliminary analysis

MRID	Citation Reference
46827901	Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.

830.1750 Certified limits

MRID	Citation Reference
46806501	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1440, a Suspension Concentrate Manufacturing-Use Product Containing Florasulam. Project Number: NAFST/06/035, EU/AM/98/007. Unpublished study prepared by Dow AgroSciences LLC. 135 p.

- 46806601 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for GF-184, a Suspension Emulsion End-Use Product Containing Florasulam and Fluroxypyr Meptyl. Project Number: NAFST/06/034, HDHE/C/00030, 10071. Unpublished study prepared by Dow AgroSciences LLC. 155 p.
- 46806701 Heim, D. (2006) Group A - Product Identity, Composition, and Analysis for GF-1727, a Suspension Emulsion End-Use Product Containing Florasulam and MCPA 2-Ethylhexyl Ester. Project Number: NAFST/06/014, EU/AM/98/007. Unpublished study prepared by Dow Agrosciences LLC. 144 p.
- 46806801 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1343, a Suspension Concentrate End-Use Product Containing Florasulam. Project Number: NAFST/06/036, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 136 p.
- 46806901 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1383, a Suspension Emulsion End-use Product Containing Florasulam and 2,4-D 2-Ethylhexyl Ester. Project Number: NAFST/06/033, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 140 p.
- 46827901 Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.
- 47166901 Qin, K.; Stock, M. (2007) Group A- Product Identity, Composition and Analysis for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/064. Unpublished study prepared by Dow AgroSciences, LLC. 133 p.

830.1800 Enforcement analytical method

MRID	Citation Reference
46806501	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1440, a Suspension Concentrate Manufacturing-Use Product Containing Florasulam. Project Number: NAFST/06/035, EU/AM/98/007. Unpublished study prepared by Dow AgroSciences LLC. 135 p.
46806601	Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for GF-184, a Suspension Emulsion End-Use Product Containing Florasulam and Fluroxypyr Meptyl. Project Number: NAFST/06/034, HDHE/C/00030, 10071. Unpublished study prepared by Dow AgroSciences LLC. 155 p.
46806701	Heim, D. (2006) Group A - Product Identity, Composition, and Analysis for GF-

1727, a Suspension Emulsion End-Use Product Containing Florasulam and MCPA 2-Ethylhexyl Ester. Project Number: NAFST/06/014, EU/AM/98/007. Unpublished study prepared by Dow Agrosciences LLC. 144 p.

- 46806801 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1343, a Suspension Concentrate End-Use Product Containing Florasulam. Project Number: NAFST/06/036, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 136 p.
- 46806901 Keeney, N. (2006) Group A - Product Identity, Composition, and Analysis for EF-1383, a Suspension Emulsion End-use Product Containing Florasulam and 2,4-D 2-Ethylhexyl Ester. Project Number: NAFST/06/033, EU/AM/98/007, 99036/DA. Unpublished study prepared by Dow Agrosciences LLC. 140 p.
- 46827901 Heim, D. (2006) Group A: Product Identity and Composition, Description of Materials Used to Produce the Product, Description of the Production Process, Discussion of Formation of Impurities, Certified Limits, Preliminary Analysis, and Enforcement Analytical Methods for Florasulam Technical. Project Number: NAFST/06/030. Unpublished study prepared by Dow AgroSciences LLC and Dow Chemical, USA. 417 p.
- 47166901 Qin, K.; Stock, M. (2007) Group A- Product Identity, Composition and Analysis for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/064. Unpublished study prepared by Dow AgroSciences, LLC. 133 p.

830.6302 Color

MRID	Citation Reference
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosciences LLC. 18 p.
46806802	Huntley, K. (2006) Group B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project

Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.

46808002 Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

47166902 Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.6303 Physical state

MRID	Citation Reference
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosciences LLC. 18 p.
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46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.
46808002	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.
47166902	Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.6304 Odor

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosiences LLC. 18 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosiences LLC. 171 p.
46808002	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.
47166902	Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.6313 Stability to sunlight, normal and elevated temperatures, metals, and metal ions

MRID	Citation Reference
46808002	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

830.6314 Oxidizing or reducing action

MRID	Citation Reference
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46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosiences LLC. 18 p.
46806802	Huntley, K. (2006) Gropu B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosiences LLC. 171 p.
47166902	Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.6315 Flammability

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of

GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosciences LLC. 18 p.

- 46806802 Huntley, K. (2006) Gropu B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
- 46806902 Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.
- 47166902 Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.6316 Explodability

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosciences LLC. 18 p.
46806802	Huntley, K. (2006) Gropu B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.

830.6317 Storage stability of product

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806802	Huntley, K. (2006) Group B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.
46808006	Teasdale, R. (1999) The Stability of DE-570 in Wheat Under Frozen Storage Conditions Over 18 Months (Supplementary Report). Project Number: GHE/P/8203, ST96/001. Unpublished study prepared by Dow AgroSciences LLC. 196 p.

830.6320 Corrosion characteristics

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806802	Huntley, K. (2006) Group B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.

46806902 Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.

830.7000 pH of water solutions or suspensions

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosciences LLC. 18 p.
46806802	Huntley, K. (2006) Group B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosciences LLC. 171 p.
46808002	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.
47166902	Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.7100 Viscosity

MRID	Citation Reference
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46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
46806602	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
46806702	Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosiences LLC. 18 p.
46806802	Huntley, K. (2006) Gropu B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
46806902	Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosiences LLC. 171 p.
47166902	Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.7200 Melting point/melting range

MRID	Citation Reference
46808002	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

830.7300 Density/relative density

MRID	Citation Reference
46806502	Huntley, K. (2006) Group B: Physical and Chemical Properties of EF-1440, a

Liquid Manufacturing Concentrate Containing DE-570. Project Number: NAFST/06/023, KLP/98/003, GHE/P/7913. Unpublished study prepared by Dow AgroSciences LLC. 45 p.

- 46806602 Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam + Fluroxypyr Methylheptyl Ester (2.5 + 144 G/L) SE, GF-184. Project Number: NAFST/06/020, GHE/P/10034, KLP/00/006. Unpublished study prepared by Dow AgroSciences LLC. 107 p.
- 46806702 Huntley, K. (2005) Determination of Color, Physical State, Odor, Oxidizing and Reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1727, an End-Use Product Containing Florasulam and MCPA 2-EHE. Project Number: FAPC/052/011. Unpublished study prepared by Dow Agrosiences LLC. 18 p.
- 46806802 Huntley, K. (2006) Gropu B: Physical and Chemical Properties of XDE-570 50 G/L SC Herbicide, ED-1343. Project Number: NAFST/06/018, GHE/P/7916, KLP/97/005. Unpublished study prepared by Dow AgroSciences LLC. 77 p.
- 46806902 Huntley, K. (2006) Group B: Physical and Chemical Properties of DE-570 + 2,4-D 2-Ethylhexyl Ester 6.25 + 300 (AE) G/L SE Herbicide, EF-1383. Project Number: NAFST/06/021, DOS391/042115, DOS/391. Unpublished study prepared by Dow Agrosiences LLC. 171 p.
- 46808002 Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.
- 47166902 Stock, M. (2007) Group B- Physical/Chemical Properties for GF-1848, A Liquid End Use Product Containing Pyroxsulam, Florasulam, (Inert Ingredient) and Fluroxypyr-meptyl. Project Number: NAFST/07/054. Unpublished study prepared by Dow AgroSciences, LLC. 5 p.

830.7370 Dissociation constant in water

MRID	Citation Reference
46808002	Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

830.7550 Partition coefficient (n-octanol/water), shake flask method

MRID	Citation Reference
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46808002 Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

830.7840 Water solubility: Column elution method, shake flask method

MRID

Citation Reference

46808002 Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

830.7950 Vapor pressure

MRID

Citation Reference

46808002 Huntley, K. (2006) Group B: Physical and Chemical Properties of Florasulam Technical. Project Number: NAFST/06/024, 96/DES396/0863, 93030/CL. Unpublished study prepared by Dow AgroSciences LLC. 318 p.

850.1075 Fish acute toxicity test, freshwater and marine

MRID

Citation Reference

46808313 Jenkins, C. (1996) EF-1343: Acute Toxicity to Rainbow Trout: Final Report. Project Number: DES/345, 96/DES345/0351, MA130/DES345. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 42 p.

850.1730 Fish BCF

MRID

Citation Reference

46808322 Rick, D.; Kirk, H.; Miller, J. (1997) The Bioconcentration of XDE-570 by the Rainbow Trout, *Onchorhynchus mykiss* Walbaum. Project Number: ES/3038. Unpublished study prepared by The Dow Chemical Co. 68 p.

850.4100 Terrestrial plant toxicity, Tier 1 (seeding emergence)

MRID

Citation Reference

46808323 Ehr, R.; Alexander, A. (1997) The Activity of DE-570 in Herbicide, Insecticide and Fungicide Screening Tests and the Herbicidal Activity of DE-570 Soil Metabolites. Project Number: RJE/TS/07/28/97. Unpublished study prepared by Dow Agrosciences LLC. 34 p.

850.4150 Terrestrial plant toxicity, Tier 1 (vegetative vigor)

MRID	Citation Reference
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46808323 Ehr, R.; Alexander, A. (1997) The Activity of DE-570 in Herbicide, Insecticide and Fungicide Screening Tests and the Herbicidal Activity of DE-570 Soil Metabolites. Project Number: RJE/TS/07/28/97. Unpublished study prepared by Dow Agrosciences LLC. 34 p.

850.4225 Seedling emergence, Tier II

MRID	Citation Reference
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46808324 Cordes, R. (1998) The Effects of DE-570 on the Emergence and Vegetative Vigor of Non-Target Terrestrial Plants (Tier II Study). Project Number: ENV98072. Unpublished study prepared by Dow Agrosciences LLC. 216 p.

850.4250 Vegetative vigor, Tier II

MRID	Citation Reference
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46808324 Cordes, R. (1998) The Effects of DE-570 on the Emergence and Vegetative Vigor of Non-Target Terrestrial Plants (Tier II Study). Project Number: ENV98072. Unpublished study prepared by Dow Agrosciences LLC. 216 p.

860.1200 Directions for use

MRID	Citation Reference
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46806805 Johnson, I. (1996) EF-1343 (XDE-570 50 SC): Acute Percutaneous Toxicity Study in the Rat. Project Number: DES/313, 95/DES313/0906. Unpublished study prepared by Huntingdon Life Sciences Ltd. 40 p.

860.1340 Residue analytical method

MRID	Citation Reference
46808007	Butcher, S.; Gibson, R.; Hastings, M.; et. al. (1996) Determination of XDE-570 Residues in Wheat and Barley. Project Number: RV95/004. Unpublished study prepared by Dowelanco Ltd. 28 p.
46808008	Butcher, S. (1996) Independent Validation of Dowelanco Analytical Method ERC 95.6 for the Determination of XDE-570 Residues in Wheat and Barley. Project Number: GHE/P/5036. Unpublished study prepared by Dowelanco Ltd. 61 p.
46808009	Ghosh, D.; Maycock, R.; Todd, M.; et. al. (1996) Determination of the Residues of XDE-570 and 5-Hydroxy XDE-570 in Soil Using Aqueous Extraction. Project Number: ERC/95/2. Unpublished study prepared by Dowelanco Ltd. 25 p.
46808010	Ghosh, D.; Maycock, R.; Todd, M.; et. al. (1996) Determination of Residues of XDE-570 and 5-Hydroxy XDE-570 in Soil Using Organic Extraction. Project Number: ERC/95/1. Unpublished study prepared by Dowelanco Ltd. 26 p.
46808011	Butcher, S.; Gibson, R. (1996) Determination of the Residues of XDE-570 and its 5-Hydroxy Metabolite in Surface Water. Project Number: RV96/014, ERC/96/15. Unpublished study prepared by Dowelanco Ltd. 24 p.
46808012	Butcher, S.; Gibson, R.; Ghosh, D. (1996) Determination of the Residues of XDE-570 and its 5-Hydroxy Metabolite in Soil. Project Number: ERC/96/23. Unpublished study prepared by Dowelanco Ltd. 21 p.
46808013	Butcher, S.; Wright, D.; Bratby, B.; et. al. (1996) Determination of the Residues of XDE-570 and its 5-Hydroxy Metabolite in Soil Using Organic Extraction. Project Number: ERC/96/23. Unpublished study prepared by Dowelanco Ltd. 21 p.
46808014	Maycock, R.; Roberts, R.; Gibson, R. (1997) Determination of Bioavailable Residues of DE-570 in Soil Using a Magnetic Particle-Based Immunoassay Test Kit. Project Number: ERC/96/21, RV97/012. Unpublished study prepared by Dowelanco Ltd. 32 p.
46808015	Maycock, R.; Roberts, R.; Gibson, R. (1997) Validation of Analytical Method ERC 97.04 - Determination of Bioavailable Residues of DE-570 in Soil Using a Magnetic Particle-Based Immunoassay Test Kit. Project Number: GHE/P/6355. Unpublished study prepared by Dowelanco Ltd. 41 p.
46808016	Maycock, R.; Roberts, R. (1997) A Comparison of Three Analytical Methods (Immunochemical, LC/MS-MS and Bioassay) to Determine the Bioavailable Residues of DE-570 from Field Derived Soils. Project Number: GHE/P/6365. Unpublished study prepared by Dowelanco Ltd. 76 p.

- 46808017 Gambie, A.; McLaughlin, E. (1997) Validation of Analytical Method ERC 97.07 - Determination of DE-570 in Soil. Project Number: RV97/014. Unpublished study prepared by Dowelanco Ltd. 22 p.
- 46808018 Young, D.; Duebelbeis, D. (1998) Residue Method Validation Report for the Determination of Florasulam (proposed) in Grains by Immunoassay. Project Number: RES97041/01. Unpublished study prepared by Dow AgroSciences LLC. 61 p.
- 46808019 Duebelbeis, D.; Thomas, A. (1998) Residue Method Validation Report for the Determination of DE-570 (Florasulam) in Cereal Crop Commodities: Forage and Immature Green; Grain; Hay and Immature Dried; and Straw by Capillary Gas Chromatography with Mass Selective Detection (GRM. Project Number: RES98071. Unpublished study prepared by Dow Agrosiences LLC. 55 p.
- 46808020 Eckert, J.; West, S. (1999) Independent Laboratory Validation of Method GRM 98.01 - Determination of DE-570 (Florasulam) in Cereal Crop Commodities: Forage and Immature Green; Grain, Hay and Immature Dried; and Straw by Capillary Gas Chromatography with Mass Selective Detection. Project Number: DOW/05/99. Unpublished study prepared by Enviro-Bio-Tech, Ltd. 75 p.

860.1360 Multiresidue method

MRID	Citation Reference
46808021	Conrath, B.; West, S. (1998) Multi-Residue Methods Testing for DE-570 According to PAM I, Appendix II, as Updated January, 1994. Project Number: 44706, ACFS/44706. Unpublished study prepared by ABC Laboratories, Inc. 44 p.

860.1380 Storage stability data

MRID	Citation Reference
46808022	Bargar, E.; Jackson, R. (1999) A Re-Evaluation of DE-570 Residue Data in Immature Green Plants and Hay for Storage Correction Factors. Project Number: GH/C/4895. Unpublished study prepared by Dowelanco North American Environmental. 294 p.
46808025	Blakeslee, B. (2000) Frozen Storage Stability of XDE-570 in Wheat Immature Green Plants, Immature Dried Plants, Forage, Grain, Straw and Hay. Project Number: RES97100/01. Unpublished study prepared by Dow AgroSciences LLC. 80 p.
46827904	Duebelbeis, D.; Thomas, A. (1999) Storage Stability of Florasulam Standard

Solutions in Acetone. Project Number: GH/C/4909. Unpublished study prepared by Dow AgroSciences LLC. 14 p.

46827905 Gambie, A.; Teasdale, R. (1999) The Stability of DE-570 in Wheat Under Frozen Storage Conditions Over 18 Months (Final Report): Florasulam. Project Number: GHE/P/7904, ST96/001. Unpublished study prepared by Dowelanco Ltd. 30 p.

860.1400 Water, fish, and irrigated crops

MRID	Citation Reference
46808026	Roberts, R. (1993) Determination of XDE-570 Concentrations in Drinking Water Using Both LC/UV and Immunoassay Methods. Project Number: GHE/P/4774. Unpublished study prepared by Ohmicron, Inc. and CEM Analytical Services, Ltd. 67 p.
46808027	Butcher, S. (1995) Determination of XDE-570 Residues in Drinking Water. Project Number: ERC/95/19. Unpublished study prepared by Dowelanco Ltd. 17 p.
46808028	Roberts, R. (1995) Independent Laboratory Validation of an Analytical Method for the Determination of Residues of XDE-570 in Drinking Water. Project Number: GHE/P/4781, REV95/013. Unpublished study prepared by CEM Analytical Services, Ltd. 59 p.
46808029	Gibson, R.; Butcher, S. (1996) Determination of the Residues of XDE-570 and its 5-Hydroxy Metabolite in Drinking Water. Project Number: ERC/96/14, RV96/013. Unpublished study prepared by Dowelanco Ltd. 24 p.
46808030	Maycock, R.; Roberts, R.; Gibson, R. (1997) Determination of Residues of XDE-570 in Ground, Surface and Drinking Water Using a Magnetic Particle-Based Immunoassay Test Kit. Project Number: GHE/P/5534. Unpublished study prepared by Dowelanco Ltd. 47 p.
46808031	Roberts, D.; Phillips, A. (2002) Magnitude of the Residue of Florasulam in Canada Oat and Barley Grain. Project Number: 011164. Unpublished study prepared by Dow AgroSciences LLC and Ecologistics Research Services and Marbicon, Inc. 46 p.

860.1500 Crop field trials

MRID	Citation Reference
46808022	Bargar, E.; Jackson, R. (1999) A Re-Evaluation of DE-570 Residue Data in

- Immature Green Plants and Hay for Storage Correction Factors. Project Number: GH/C/4895. Unpublished study prepared by Dowelanco North American Environmental. 294 p.
- 46808032 Butcher, S.; Gibson, R. (1996) Residues of XDE-570 in Winter Wheat at Intervals Following a Single or Double Application of EF-1343, UK - 1995. Project Number: GHE/P/4811, R95/050. Unpublished study prepared by Dowelanco Ltd. 46 p.
- 46808033 Butcher, S.; Gibson, R. (1996) Residues of XDE-570 in Winter Soft Wheat at Intervals Following a Single or Double Application of EF-1343, Northern France - 1995. Project Number: GHE/P/4812, R95/016. Unpublished study prepared by DowElanco SA. 45 p.
- 46808034 Butcher, S.; Gibson, R. (1996) Residues of XDE-570 in Winter Barley at Intervals Following a Single or Double Application of EF-1343, Northern France - 1995. Project Number: GHE/P/4869, R95/017. Unpublished study prepared by Dowelanco Ltd and DowElanco SA. 45 p.
- 46808036 Butcher, S. (1996) Residues of XDE-570 in Winter Barley at Intervals Following a Single or Double Application of EF-1343, Southern France - 1995. Project Number: GHE/P/5037, RF95/047. Unpublished study prepared by DowElanco SA and Dowelanco Ltd and CEM Analytical Services, Ltd. 70 p.
- 46808038 Butcher, S. (1996) Residues of XDE-570 in Winter Wheat at Intervals Following a Single Application of EF-1343, Italy - 1995. Project Number: GHE/P/5133, R95/010. Unpublished study prepared by DowElanco Italia S and Dowelanco Ltd and CEM Analytical Services, Ltd. 63 p.
- 46808040 Butcher, S. (1996) Residues of XDE-570 in Durum Wheat at Harvest Following a Single Application of EF-1289, Southern France - 1994. Project Number: GHE/P/5007, R94/114. Unpublished study prepared by Dowelanco Ltd and DowElanco SA. 36 p.
- 46808041 Butcher, S. (1996) Residues of XDE-570 in Winter Barley at Intervals Following a Single Application of EF-1343, Germany - 1995. Project Number: GHE/P/5179, RL95/007. Unpublished study prepared by Dowelanco Ltd and DowElanco GmbH and CEM Analytical Services, Ltd. 61 p.
- 46808042 Butcher, S. (1996) Residues of XDE-570 in Winter Wheat at Intervals Following a Single Application of EF-1343, Germany - 1995. Project Number: GHE/P/5180, RL95/008. Unpublished study prepared by DowElanco GmbH and Dowelanco Ltd and CEM Analytical Services, Ltd. 62 p.
- 46808043 Butcher, S.; Gibson, R.; Gambie, A. (1996) Residues of XDE-570 in Winter Barley and Soil at Harvest Following a Single Application of EF-1343, Spain - 1995. Project Number: GHE/P/5385, R95/045. Unpublished study prepared by Dowelanco Ltd, Dowelanco Iberica S.A. and CEM Analytical Services, Ltd. 125 p.

- 46808044 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat at Harvest Following a Single Application of EF-1343, Spain - 1996. Project Number: GHE/P/6332, R96/005. Unpublished study prepared by Dowelanco Ltd and Dowelanco Iberica S.A. and CEM Analytical Services, Ltd. 54 p.
- 46808101 Gambie, A.; Butler, R. (1997) Residues of DE-570 In Winter Barley at Intervals Following a Single Application of EF-1343, Italy - 1996. Project Number: R96/008, GHE/P/6335. Unpublished study prepared by DowElanco Ltd and DowElanco Italia SRL. 58 p.
- 46808102 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley at Intervals Following a Single Application of EF-1343, Southern France - 1996. Project Number: GHE/P/6338, R96/110. Unpublished study prepared by DowElanco Ltd and DowElanco SA. 62 p.
- 46808103 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Soft Wheat at Intervals Following a Single Application of EF-1343, Southern France - 1996. Project Number: R96/111, GHE/P/6339, CEMR/652. Unpublished study prepared by Dowelanco Ltd and DowElanco SA. 63 p.
- 46808104 Gambie, A.; Butler, R. (1997) Residues of DE-570 In Winter Barley at Intervals Following a Single or Double Application of EF-1343, UK - 1996. Project Number: GHE/P/6331, R96/004, CEMR/640. Unpublished study prepared by Dowelanco Ltd. 86 p.
- 46808105 Gambie, A.; Butler, R. (1997) Residues of DE-570 In Winter Durum Wheat at Harvest Following a Single Application of EF-1343, Southern France - 1996. Project Number: GHE/P/6341, R96/113. Unpublished study prepared by Dowelanco Ltd and DowElanco SA. 55 p.
- 46808106 Gambie, A.; Butler, R. (1997) Residues of DE-570 In Winter Barley at Harvest Following a Single Application of EF-1343, Italy - 1996. Project Number: GHE/P/6336, R96/009, CEMR/645. Unpublished study prepared by Dowelanco Ltd and DowElanco Italia SRL. 54 p.
- 46808107 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Soft Wheat at Intervals Following a Single Application of EF-1343, Northern France - 1996. Project Number: GHE/P/6343, R96/115, CEMR/656. Unpublished study prepared by Dowelanco Ltd and DowElanco SA. 60 p.
- 46808108 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat at Intervals Following a Single Application of EF-1343, Italy -1996. Project Number: GHE/P/6334, R96/007, CEMS/643. Unpublished study prepared by Dowelanco Ltd and DowElanco Italia SRL. 60 p.
- 46808109 Gambie, A.; Butler, R. (1997) Residues of DE-570 In Winter Wheat and Soil at Harvest Following a Single Application of EF-1343, Spain - 1995. Project Number: GHE/P/5386, R95/046, 295/58. Unpublished study prepared by Dowelanco Iberica S.A. and Dowelanco Ltd. 134 p.

- 46808110 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat and Soil at Harvest Following a Single or Double Application of EF-1343, UK - 1995. Project Number: GHE/P/5390, R95/049, 295/62. Unpublished study prepared by Dowelanco Ltd and Dow AgroSciences Limited. 136 p.
- 46808111 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Grain, Straw and Soil at Harvest Following a Single Application of EF-1343 to Winter Wheat, Germany - 1995. Project Number: RF95/006, RL95/006, GHE/P/5476. Unpublished study prepared by Dowelanco Ltd and DowElanco GmbH. 135 p.
- 46808112 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat and Soil at Harvest Following a Single Application of EF-1343, Italy - 1995. Project Number: GHE/P/5387, R/95/011, 295/59. Unpublished study prepared by Dowelanco Ltd, Corning Hazleton (Europe) and CEM Analytical Services, Ltd. 129 p.
- 46808113 Gambie, A.; Butler, R. (1997) Residues of DE-570 In Winter Barley and Soil at Harvest Following a Single or Double Application of EF-1343, Southern France - 1995. Project Number: GHE/P/5389, R95/015, 295/61. Unpublished study prepared by Dowelanco Ltd, Corning Hazleton (Europe) and CEM Analytical Services, Ltd. 138 p.
- 46808114 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Grain, Straw and Soil at Harvest Following a Single Application of EF-1343 to Winter Barley, Germany - 1995. Project Number: GHE/P/5477, RF95/009, RL95/009. Unpublished study prepared by Dowelanco Ltd, Corning Hazleton (Europe) and Covance Laboratories, Ltd. 91 p.
- 46808115 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley and Soil at Harvest Following a Single Application of EF-1343, Italy - 1995. Project Number: GHE/P/5388, R95/012, 295/60. Unpublished study prepared by Dowelanco Ltd, CEM Analytical Services, Ltd. and Covance Laboratories, Ltd. 129 p.
- 46808116 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley and Soil at Harvest Following a Single Application of EF-1343, UK - 1996. Project Number: GHE/P/6329, R96/002, CEMR/638. Unpublished study prepared by Dowelanco Ltd, Agrisearch UK, Ltd. and CEM Analytical Services, Ltd. 111 p.
- 46808117 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley and Soil at Harvest Following a Single Application of EF-1343, Spain - 1996. Project Number: GHE/P/6333, R96/006, CEMR/642. Unpublished study prepared by Dowelanco Ltd, Dowelanco Iberica S.A. and CEM Analytical Services, Ltd. 76 p.
- 46808118 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat and Soil at Harvest Following a Single Application of EF-1343, UK - 1996. Project Number: GHE/P/6330, R96/003, CEMR/639. Unpublished study prepared by Dowelanco Ltd, Agrisearch UK, Ltd. and CEM Analytical Services, Ltd. 109 p.

- 46808119 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat and Soil at Harvest Following a Single Application of EF-1343, Italy - 1996. Project Number: GHE/P/6337, R96/010, CEMS/646. Unpublished study prepared by Dowelanco Ltd, CEM Analytical Services, Ltd. and Covance Laboratories, Ltd. 77 p.
- 46808120 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley and Soil at Harvest Following a Single Application of EF-1343, Northern France - 1996. Project Number: GHE/P/6342, R96/114, CEMS/655. Unpublished study prepared by Dowelanco Ltd, CEM Analytical Services, Ltd. and Covance Laboratories, Ltd. 77 p.
- 46808121 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Soft Wheat and Soil at Harvest Following a Single Application of EF-1343, Northern France. Project Number: GHE/P/6344, R96/116, CEMS/657. Unpublished study prepared by Dowelanco Ltd, CEM Analytical Services, Ltd. and Covance Laboratories, Ltd. 75 p.
- 46808122 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Soft Wheat and Soil at Harvest Following a Single Application of EF-1343, Southern France - 1996. Project Number: R96/112, GHE/P/6340, CEMR/653. Unpublished study prepared by Dowelanco Ltd, CEM Analytical Services, Ltd. and Covance Laboratories, Ltd. 77 p.
- 46808123 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley and Soil at Harvest Following a Single or Double Application of EF-1343, UK - 1995. Project Number: GHE/P/5391, R95/051, 295/63. Unpublished study prepared by Dowelanco Ltd, Dow AgroSciences Limited. 109 p.
- 46808124 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat at Harvest Following a Single or Double Application of EF-1343, Germany -1996. Project Number: GHE/P/6345, RF96/011, RL96/011. Unpublished study prepared by Dowelanco Ltd, DowElanco GmbH and CEM Analytical Services, Ltd. 82 p.
- 46808125 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley at Harvest Following a Single or Double Application of EF-1343, Germany - 1996. Project Number: GHE/P/6346, FR96/012, RL96/012. Unpublished study prepared by Dowelanco Ltd, DowElanco GmbH and CEM Analytical Services, Ltd. 58 p.
- 46808126 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Wheat at Intervals Following a Single or Double Application of EF-1343, Germany - 1996. Project Number: GHE/P/6347, RF96/013, RL96/013. Unpublished study prepared by Dowelanco Ltd, DowElanco GmbH and CEM Analytical Services, Ltd. 67 p.
- 46808127 Gambie, A.; Butler, R. (1997) Residues of DE-570 in Winter Barley at Intervals Following a Single or Double Application of EF-1343, Germany - 1996. Project Number: GHE/P/6348, FR96/014, RL96-014. Unpublished study prepared by Dowelanco Ltd, DowElanco GmbH and CEM Analytical Services, Ltd. 65 p.
- 46808128 Bargar, E.; Foster, D. (1998) Magnitude of Residue of DE-570 in Spring Wheat,

Barley and Oat. Project Number: RES97041. Unpublished study prepared by Dow AgroSciences LLC. 193 p.

46808129 Bargar, E.; Foster, D. (2000) Magnitude of Residue of DE-570 in Wheat, Barley, Oat and Rye. Project Number: RES97081. Unpublished study prepared by Dow AgroSciences LLC. 128 p.

46827906 Butcher, S. (1996) Residues of XDE-570 in Winter Wheat at Harvest Following a Single Application of EF-1289, UK - 1994. Project Number: GHE/P/4813, R94/115. Unpublished study prepared by Dowelanco Ltd. 40 p.

46827907 Butcher, S. (1996) Residues of XDE-570 in Winter Soft Wheat at Intervals Following a Single or Double Application of EF-1343, Southern France -1995. Project Number: CEMS/514, GHE/P/5118, R/94/048. Unpublished study prepared by DowElanco SA and CEM Analytical Services, Ltd. 72 p.

46827908 Butcher, S. (1996) Residues of XDE-570 in Winter Barley at Intervals Following a Single Application of EF-1343, Italy - 1995. Project Number: GHE/P/5178, R95/013, CEMR/531. Unpublished study prepared by Dowelanco Ltd, DowElanco Italia S and CEM Analytical Services, Ltd. 63 p.

870.1100 Acute oral toxicity

MRID	Citation Reference
46806603	Wilson, C. (2000) GF-184: An Acute Oral Toxicity Study in Fischer 344 Rats: Final Report. Project Number: 3504/91, 000091. Unpublished study prepared by Springborn Laboratories, Inc. 69 p.
46806703	Durando, J. (2005) GF-1727: Acute Oral Toxicity Up and Down Procedure in Rats. Project Number: 050802/1D, 18044, 050471. Unpublished study prepared by Product Safety Laboratories. 28 p.
46806903	McRae, L. (1997) EF-1383: Acute Oral Toxicity to the Rat. Project Number: GHE/T/793, DWC/866/971623/AC. Unpublished study prepared by Dowelanco Ltd. 35 p.
47166903	Durando, J. (2007) Acute Oral Toxicity Up and Down Procedure in Rats: GF-1848. Project Number: 070006, 21426, P320/UDP/DOW. Unpublished study prepared by Product Safety Laboratories. 29 p.
47166909	Durando, J. (2007) Study Profile Template (SPT) for GF-1848: Acute Oral Toxicity Up and Down Procedure in Rats. Project Number: 21426/SPT, 070006/SPT. Unpublished study prepared by Product Safety Laboratories. 8 p.

870.1200 Acute dermal toxicity

MRID	Citation Reference
46806604	Wilson, C. (2000) GF-184: An Acute Dermal Toxicity Study in Fischer 344 Rats: Final Report. Project Number: 3504/92, 000092. Unpublished study prepared by Springborn Laboratories, Inc. (SLI). 54 p.
46806704	Durando, J. (2005) GF-1727: Acute Dermal Toxicity Study in Rats - Limit Test. Project Number: 18045, 050472, 050802/1D. Unpublished study prepared by Product Safety Laboratories. 26 p.
46806904	McRae, L. (1997) EF-1383: Acute Dermal Toxicity to the Rat. Project Number: DWC/867/971528/AC, IT/EEC/B3/R/1/3. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 31 p.
47166904	Durando, J. (2007) Acute Dermal Toxicity Study in Rats- Limit Test: GF-1848. Project Number: 21427, 070007, P322/DOW. Unpublished study prepared by Product Safety Laboratories. 28 p.
47166910	Durando, J. (2007) Study Profile Template (SPT) for GF-1848: Acute Dermal Toxicity Study in Rats. Project Number: 21427/SPT, 070007/SPT. Unpublished study prepared by Product Safety Laboratories. 7 p.

870.1300 Acute inhalation toxicity

MRID	Citation Reference
46806705	Hotchkiss, J.; Krieger, S.; Filary, M. (2005) GF-1727: Acute Liquid Aerosol Inhalation Toxicity Study in F344/DUCRL Rats. Project Number: 051172. Unpublished study prepared by The Dow Chemical Company. 68 p.
47166905	Krieger, S.; Radtke, B. (2007) GF-1848: Acute Liquid Aerosol Inhalation Toxicity Study in F344/Ducrl Rats. Project Number: 071002. Unpublished study prepared by Dow Chemical, USA. 72 p.
47166911	Radtke, B. (2007) Study Profile Template (SPT) for GF-1848: Acute Liquid Inhalation Toxicity Study in F344/DUCRL Rats. Project Number: 071002/SPT. Unpublished study prepared by Dow Chemical, USA. 11 p.

870.2400 Acute eye irritation

MRID	Citation Reference
46806605	Wilson, C. (2000) GF-184: A Primary Eye Irritation Study in New Zealand White Rabbits: Final Report. Project Number: 3504/94, 000094. Unpublished

study prepared by Springborn Laboratories, Inc. (SLI). 45 p.

- 46806706 Durando, J. (2005) GF-1727: Primary Eye Irritation Study in Rabbits. Project Number: 050474, 18046, 050802/1D. Unpublished study prepared by Product Safety Laboratories. 29 p.
- 46806905 Parcell, B. (1997) EF-1383: Acute Eye Irritation to the Rabbit. Project Number: DWC/869/971654/SE, GHE/T/798, IT/EEC/B5/RB/1/1. Unpublished study prepared by Dowelanco Ltd. 30 p.
- 47166906 Durando, J. (2007) Primary Eye Irritation Study in Rabbits: GF-1848. Project Number: 21428, 070009, P324/DOW. Unpublished study prepared by Product Safety Laboratories. 32 p.
- 47166912 Durando, J. (2007) Study Profile Template (SPT) for GF-1848: Primary Eye Irritation Study in Rabbits. Project Number: 21428/SPT, 070009/SPT. Unpublished study prepared by Product Safety Laboratories. 7 p.

870.2500 Acute dermal irritation

MRID	Citation Reference
46806606	Wilson, C. (2000) GF-184: A Primary Skin Irritation Study in New Zealand White Rabbits: Final Report. Project Number: 3504/93, 000093. Unpublished study prepared by Springborn Laboratories, Inc. (SLI). 45 p.
46806707	Durando, J. (2005) GF-1727: Primary Skin Irritation Study in Rabbits. Project Number: 050802/1D, 18047, 050473. Unpublished study prepared by Product Safety Laboratories. 28 p.
46806807	Brooks, K. (1998) DE-570 550 G/L SC Herbicide (EF-1343): Acute Dermal Irritation Study in New Zealand White Rabbits. Project Number: 981135. Unpublished study prepared by The Dow Chemical Co. 14 p.
46806906	Parcell, B. (1997) EF-1383: Skin Irritation to the Rabbit. Project Number: DWC/867/971491/SE, IT/EEC/B4/RB/1/1. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 30 p.
47166907	Durando, J. (2007) Primary Skin Irritation Study in Rabbits: GF-1848. Project Number: 21429, 070008, P326/DOW. Unpublished study prepared by Product Safety Laboratories. 29 p.
47166913	Durando, J. (2007) Study Profile Template (SPT) for GF-1848: Primary Skin Irritation Study in Rabbits. Project Number: 21429/SPT, 070008/SPT. Unpublished study prepared by Product Safety Laboratories. 7 p.

870.2600 Skin sensitization

MRID	Citation Reference
46806607	Wilson, C. (2000) GF-184: A Dermal Sensitization Study in Hartley Albino Guinea Pigs, Modified Buehler Design: Final Report. Project Number: 3504/95, 000095. Unpublished study prepared by Springborn Laboratories, Inc. (SLI). 87 p.
46806708	Woolhiser, M.; Wiescinski, C. (2005) GF-1727: Local Lymph Node Assay in Balb/cAnNCrI Mice. Project Number: 051158. Unpublished study prepared by The Dow Chemical Co. 25 p.
46806808	Woolhiser, M.; Anderson, P. (2004) EF-1343: Local Lymph Node Assay in Balb/C Mice to Evaluate Dermal Sensitization Potential. Project Number: 041065. Unpublished study prepared by The Dow Chemical Co. 24 p.
46806907	Coleman, D. (1997) EF-1383: Skin Sensitization in the Guinea Pig. Project Number: DWC/870/971227/SS, GHE/T/792. Unpublished study prepared by Dowelanco Ltd. 46 p.
47166908	Woolhiser, M.; Wiescinski, C.; Sosinski, L. (2007) GF-1848: Local Lymph Node Assay in CBA/J Mice. Project Number: 061198. Unpublished study prepared by Dow Chemical, USA. 30 p.
47166914	Wiescinski, C. (2007) Study Profile Template (SPT) for GF-1848: Local Lymph Node Assay in CBA/J Mice. Project Number: 061198/SPT. Unpublished study prepared by Dow Chemical, USA. 14 p.

870.3800 Reproduction and fertility effects

MRID	Citation Reference
46808333	Reynolds, S. (2005) GF-1274: Effects on Reproduction and Growth in the Earthworm Eisenia Fetida: Final Report. Project Number: CEMS/2625, CEMR/2625, 050130. Unpublished study prepared by CEM Analytical Services, Ltd. 40 p.
46808334	Reynolds, S. (2005) GF-1361: Effects on Reproduction and Growth in the Earthworm Eisenia Fetida: Final Report. Project Number: CEMS/2621, CEMR/2621, 050131. Unpublished study prepared by CEM Analytical Services, Ltd. 45 p.

870.7485 Metabolism and pharmacokinetics

MRID	Citation Reference
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46808304 Bounds, S. (1997) XDE-570: Dermal Absorption of [(Carbon 14)]-XDE-570 in Male Fischer 344 Rats Following Exposure to Undiluted EF-1343 and a Spray Solution: Final Report. Project Number: DWC/891, DWC891/972958. Unpublished study prepared by Huntingdon Life Sciences, Ltd. 195 p.

850.7100 Data reporting for environmental chemistry methods

MRID	Citation Reference
46808207	Richter, M. (2006) Independent Laboratory Validation of Dow AgroSciences LLC Method GRM 05.19 - Determination of Residues of XDE-742 and Its Metabolites in Drinking Water, Ground Water, and Surface Water by Liquid Chromatography with Tandem Mass Spectrometry Detection. Project Number: 060006, P/1001/G, GRM/05/19. Unpublished study prepared by PTRL Europe GmbH. 52 p.

Non-Guideline Study

MRID	Citation Reference
46806500	Dow AgroSciences LLC (2006) Submission of Product Chemistry Data in Support of the Application for Registration of EF-1440 Manufacturing Concentrate. Transmittal of 1 Study.
46806600	Dow AgroSciences LLC (2006) Submission of Product Chemistry and Toxicity Data in Support of the Application for Registration of GF-184. Transmittal of 7 Studies.
46806700	Dow AgroSciences (2006) Submission of Product Chemistry and Toxicity Data in Support of the Application for Registration of GF-1727. Transmittal of 8 Studies.
46806800	Dow AgroSciences (2004) Submission of Product Chemistry and Toxicity Data in Support of the Application for Registration of EF-1343. Transmittal of 8 Studies.
46806900	Dow AgroSciences (2006) Submission of Product Chemistry and Toxicity Data in Support of the Application for Registration of EF-1383. Transmittal of 7 Studies.
46808000	Dow AgroSciences (2006) Submission of Product Chemistry and Residue Data in Support of the Application for Registration of Florasulam Technical. Transmittal of 44 Studies.
46808100	Dow AgroSciences (2006) Submission of Residue and Environmental Fate Data

in Support of the Application for Registration of Florasulam Wet Cake Technical and the Petition for Tolerance of Florasulam on Wheat, Barley, Oats, Rye and Triticale. Transmittal of 45 Studies.

- 46808200 Dow AgroSciences LLC (2006) Submission of Environmental Fate and Toxicity Data in Support of the Application for Registration of Florasulam Technical and the Petition for Tolerance of Florasulam for Use on Wheat, Barley, Oats, Rye and Triticale. Transmittal of 35 Studies.
- 46808300 Dow AgroSciences LLC (2006) Submission of Environmental Fate, Toxicity, Exposure and Risk Data in Support of the Application for Registration of Florasulam Technical and the Petition for Tolerance of Florsulam for Use on Wheat, Barley, Oats, Rye and Triticale. Transmittal of 37 Studies.
- 46808332 Ward, T.; Magazu, J.; Boeri, R. (1996) 5-Hydroxy-XDE-570: Acute Toxicity to the Earthworm, Eisenia foetida. Project Number: 1022/DO, DECO/ES/3120. Unpublished study prepared by T.R. Wilbury Laboratories, Inc. 24 p.
- 46808335 Laskowski, D. (1998) Estimation of Exposure and Risk to Workers from the Use of DE-570 (Florasulam) Herbicide on Small Grains. Project Number: GH/C/4726. Unpublished study prepared by Dow Agrosiences LLC. 18 p.
- 46808336 Cleveland, C.; Jackson, R.; Ehr, R.; et. al. (1998) Overview of DE-570 Soil Metabolites: Their Occurrence, Significance and a Proposal for Field Dissipation Analyses. Project Number: GH/C/4489. Unpublished study prepared by Dow AgroSciences LLC. 45 p.
- 46827900 Dow AgroSciences LLC (2006) Submission of Product Chemistry, Environmental Fate, Toxicity, Public Interest Finding and Residue Data in Support of the Application for Registration of Florasulam Technical and the Petition for Tolerance of Florasulam on Wheat, Barley, Oats, Rye and Triticale. Transmittal of 17 Studies.
- 46827924 Nelson, J.; Gilbert, K.; Gast, R.; et. al. (2006) Public Interest Document for Florasulam (DE-570). Project Number: PID/DOW05JN18. Unpublished study prepared by ABG, Inc. 90 p.
- 46843600 Dow AgroSciences LLC (1993) Submission of Toxicity Data in Support of the Application for Registration of Florasulam Wet Cake Technical. Transmittal of 1 Study.
- 46843800 Dow AgroSciences LLC (2006) Submission of Environmental Fate, Fate and Toxicity Data in Support of the Application for Registration of Florasulam Technical and the Petition for Tolerance of Florasulam on Wheat, Barley, Oats, Rye and Triticale. Transmittal of 6 Studies.
- 47166900 Dow AgroSciences (2007) Submission of Product Chemistry and Toxicity Data in Support of the Application for Registration of GF-1848 (AI: Pyroxulam, Florasulam, Fluroxypyr). Transmittal of 14 Studies.

