# PESTICIDE FACT SHEET

**Name of Chemical: Indaziflam**

**Reason for Issuance: Conditional Registration**

**Date Issued: July 26, 2010**

## I. DESCRIPTION OF CHEMICAL

**Chemical Name:** Indaziflam; N-[(1R,2S)-2,3-dihydro-2,6-dimethyl-1H-inden-1-yl]-6-[(1RS)-1-fluoroethyl]-1,3,5-triazine-2,4-diamine

**Common Name:** Indaziflam

**EPA PC Code:** 080818

**Chemical Abstracts Service (CAS) Number:** 950782-86-2

**Year of Initial Registration:** 2010

**Pesticide Type:** Herbicide

**Chemical Class:** Alkylazine

**Mode of Action:** Indaziflam controls weeds by inhibiting cellulose biosynthesis (CB Inhibitor)

**Registrant:** Bayer Environmental Science and Bayer Advanced

## II. USE PATTERNS AND FORMULATIONS

**Application Sites:** Indaziflam is a selective herbicide providing pre-emergence and post-emergence (when indaziflam is formulated with 2,4-D, dicamba, mecoprop, and penoxsulam) control of annual grasses and broadleaf weeds. Indaziflam is registered for application to residential and commercial areas (lawns, ornamentals, and hardscapes including patios, walkways, etc.), turf (parks, cemeteries, golf courses, sod farms, sports fields, and commercial lawns), field grown ornamentals and Christmas trees, commercial nursery and landscape plantings, and forestry sites.

**Types of Formulations:** Indaziflam is registered as EPA Reg. 432-RLNR (1501) BCS-AA10717 Technical Herbicide (containing 95.8% indaziflam) and EPA Reg. 432-RUOI (1498)

BCS-AA10717 2% MUP Herbicide (containing 2.0% indaziflam). Indaziflam is proposed for use by commercial applicators (formulated in water soluble bags and added to turf fertilizer). These proposed registrations include EPA Reg. 432-RUOO (1499) BCS-AA10717 20WSP Herbicide (containing 20.0% indaziflam), EPA Reg. 432-RUOL (1495) BCS-AA10717 0.0142% Plus Turf Fertilizer Herbicide (containing 0.0142% indaziflam), EPA Reg. 432-RUOA (1496) BCS-AA10717 0.0213% Plus Turf Fertilizer Herbicide (containing 0.0213% indaziflam), and EPA Reg. 432-RUOT (1497) BCS-AA10717 0.0284% Plus Turf Fertilizer Herbicide (containing 0.0284% indaziflam). Indaziflam is proposed for residential use by non-commercial applicators (formulated as a spray and a granule). These proposed registrations include EPA Reg. 72155-IO (89) Lawn 3FL Herbicide Concentrate / Ready to Spray (containing 0.25% indaziflam), EPA Reg. 72155-ON (90) Lawn 3FL Herbicide Ready to Use (containing 0.0031% indaziflam), and EPA Reg.72155-OR (91) Lawn 3FL Herbicide Granule (containing 0.05% indaziflam).

**Application Methods and Rates:** Indaziflam may be applied through a variety of application methods ranging from broadcast equipment to hand held equipment. Maximum annual application rates range from 0.089 to 0.134 lbs. ai/acre/year.

## III. PHYSICAL AND CHEMICAL PROPERTIES

| Physicochemical Properties of Indaziflam | | |
|---|---|---|
| Parameter | Value | Reference |
| Melting point/range | 183 -184 $^{o}$C indaziflam (pure substance) | Petition Administrative Materials |
| pH (23 °C) | pH = 6.5 indaziflam (pure substance)<br>pH = 5.1 indaziflam (technical substance) | |
| Density | 1.23 g/cm$^3$ at 20 °C (both pure and technical substance) | |
| Water solubility (g/L at 20 °C) | pH 4: 0.0044<br>pH 9: 0.0028<br>Distilled water (pH 6.6-6.9): 0.0028 | |
| Solvent solubility (g/L at 20 °C) | Acetone: 55<br>Acetonitrile: 7.6<br>Dichloromethane: 150<br>Dimethyl sulfoxide: >250<br>Ethanol: 13.0<br>Ethyl acetate: 47<br>Heptane: 0.032<br>Toluene: 4.3 | |
| Vapor pressure | 2.5 x $10^{-8}$ PA at 20 °C or 1.875 x $10^{-10}$ mm Hg<br>6.8 x $10^{-8}$ PA at 25 °C or 5.1 x $10^{-10}$ mm Hg<br>6.9 x $10^{-6}$ PA at 50 °C or 5.2 x $10^{-8}$ mm Hg | |
| Henry's law constant | 2.69 x $10^{-6}$ [Pa x m$^3$/mol] at 20 °C | |
| Dissociation constant ($pK_a$) | 3.5 | |
| Octanol/water partition coefficient Log ($K_{OW}$) | pH 2: 2.0<br>pH4, pH7 and pH9: 2.8 | |
| UV/visible absorption spectrum methanol (nm) | $\lambda_{max1}$ = 213 nm / A = 1.428<br>$\lambda_{max2}$ = 268 nm / A = 0.197<br>$\lambda_{max3}$ = 291 nm / A = 0.019 | |

## IV. HUMAN HEALTH RISK

A summary of the human health effects and risk of indaziflam as assessed in the Agency document titled "Indaziflam: Human Health Risk Assessment for Use of Indaziflam on Turf, Golf Courses, Sod Farms, Christmas Tree Farms, Non-Crop Areas and Forestry" is provided below.

The toxicology database is considered adequate for selecting toxicity endpoints for risk assessment. The scientific quality is relatively high, and the toxicity is well-characterized for all types of effects, including potential developmental, reproductive, immunologic and neurologic toxicity. At this time the database is considered complete; however, the Agency is currently evaluating issues related to volatilization of pesticides, including the use of route-to-route extrapolation and assessment of inhalation exposure using oral studies, based on recommendations of the FIFRA Scientific Advisory Panel following their December, 2009 meeting. The requirement of a 28- or 90-day inhalation toxicity study for this and other pesticides will be re-visited when the Agency has completed its review.

Indaziflam has low acute toxicity via the oral (Toxicity Category III), dermal (Toxicity Category III) and inhalation (Category IV) routes of exposure. It is not irritating to the eye or skin (Toxicity Category IV) and is not a dermal sensitizer.

| Summary of Acute Toxicity | | | | |
|---|---|---|---|---|
| Guideline No. | Study Type | MRID(s) | Results | Toxicity Category |
| 870.1100 | Acute oral - rat | 47443281 | $LD_{50}$ > 2000 mg/kg (both sexes) | III |
| 870.1200 | Acute dermal - rabbit | 47443282 | $LD_{50}$ > 2000 mg/kg (both sexes) | III |
| 870.1300 | Acute inhalation - rat | 47443283 | $LC_{50}$ > 2.3 mg/L (both sexes) | IV |
| 870.2400 | Acute eye irritation - rabbit | 47443284 | Non-irritant | IV |
| 870.2500 | Acute dermal irritation - rabbit | 47443285 | Non-irritant | IV |
| 870.2600 | Skin sensitization - guinea pig | 47443286 | Not a sensitizer (Buehler method) | N/A |

The nervous system is a target for indaziflam in rats and dogs. Degenerative neuropathology of the brain, spinal cord and sciatic nerve was reported in the dog following both subchronic and chronic oral exposure. Neuropathology in the dog was the most sensitive effect and was selected as the endpoint for all exposure scenarios involving repeated exposure. In the rat, histopathology of the brain and pituitary *pars nervosa* was observed following chronic exposure. Clinical signs of neurotoxicity were observed in both species in several studies, which included rat adult and developmental neurotoxicity studies. Decreased motor activity observed in the rat acute neurotoxicity study was selected as the appropriate endpoint for acute oral toxicity.

Degenerative renal effects were observed in the rat and mouse following chronic exposure. Liver hypertrophy was observed in rats, and females showed liver histopathology. Thyroid effects were observed in male rats following subchronic and chronic exposure but were considered secondary to liver stimulation and occurred at significantly higher doses than those selected for risk assessment (15-fold or greater), and therefore are not considered to be of concern for pre- and/or postnatal development. Other effects observed following chronic exposure were an increased incidence of atrophied or small seminal vesicles in male rats and in female mice, an incidence of stomach erosions, and blood-filled ovarian cysts. Decreased body weight gains were generally observed in the available studies. No systemic toxicity was observed in a 28-day dermal toxicity study in the rat.

In the rat developmental toxicity study, decreased fetal weight was observed in the presence of maternal effects that included decreased body weight and clinical signs of toxicity. No developmental effects were observed in rabbits up to maternally toxic dose levels. Decreased pup weight and delays in sexual maturation (preputial separation in males and vaginal patency in females) were observed in the rat two-generation reproductive toxicity study, along with clinical signs of toxicity, at a dose causing parental toxicity that included clinical signs and decreased weight gain. In the developmental neurotoxicity study, transiently decreased motor activity (PND 21 only) in male offspring was observed and was considered a potential neurotoxic effect. It was observed at a dose that also caused clinical signs of neurotoxicity along with decreased body weight in maternal animals.

There was no evidence of carcinogenicity observed in the two-year dietary rat or mouse carcinogenicity bioassays and no evidence of genotoxicity in mutagenicity studies (reverse gene mutation in bacteria, forward gene mutation in mammalian cells) or *in vitro* and *in vivo* chromosomal aberration assays. Based on the lack of evidence of carcinogenicity or genotoxicity, the Agency classified indaziflam as "Not likely to be carcinogenic to humans."

The toxicological profile is discussed in the table at the start of the next page:

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| 870.3100 | 90-Day oral toxicity (rat) | 47443287 (2005)<br>Acceptable/Guideline<br>0, 200, 5000 or 10,000 ppm in diet for 13 weeks<br>M: 0, 14, 338 or 689 mg/kg/day<br>F: 0, 16, 410 or 806 mg/kg/day<br>98.7% a.i. | NOAEL = 14/410 mg/kg/day M/F<br>LOAEL = 338/806 mg/kg/day M/F, based on: in males at 338 mg/kg/day, increased TSH at Week 3 and diffuse thyroid follicular cell hypertrophy at Week 13; in females at 806 mg/kg/day, mortality (one female, sacrificed *in extremis* with clinical signs, decreased motor activity and gastric red foci), marginally decreased body weights and decreased food consumption. |
| 870.3100 | 90-Day oral toxicity (mouse) | 47443288 (2005)<br>Acceptable/Guideline<br>0, 100, 500 or 1200 ppm in diet for 13 weeks<br>M: 0, 19, 91 or 218 mg/kg/day;<br>F: 0, 23, 118 or 256 mg/kg/day<br>96.5% a.i. | NOAEL = 91/118 mg/kg/day M/F<br>LOAEL = 218/256 mg/kg/day M/F, based on increased mortality and wasted appearance (females), hunched posture in males and females, decreased body weight/weight gain and food consumption in males and females. |
| 870.3150 | 90-Day oral toxicity (dog) | 47443289 (2008)<br>Acceptable/Guideline<br>0, 7.5, 15 or 30 mg/kg/day by gavage<br>94.5-99.4% a.i. | NOAEL = 7.5 mg/kg/day M/F<br>LOAEL = 15 mg/kg/day, based on axonal degeneration in the brain, spinal cord and sciatic nerve in males and females. At 30 mg/kg/day, 3 animals were sacrificed with seizures by Day 30; all remaining group animals were sacrificed on Day 36. Decreased body weight gain and neuropathology were observed. |
| 870.3200 | 28-Day dermal toxicity (rat) | 47443290 (2006)<br>Acceptable/Guideline<br>0, 40, 200 or 1000 mg/kg/day applied to skin 5 days/week for 4 weeks (22/23 total applications in M/F)<br>90.32% a.i. | **Systemic** NOAEL = 1000 mg/kg/day<br>LOAEL = not determined (>1000 mg/kg/day)<br>**Local dermal** NOAEL = 1000 mg/kg/day<br>LOAEL = not determined (>1000 mg/kg/day). Some indication of local dermal irritation was observed at all doses but the findings were transient and observed only in females, and therefore were not considered adverse. |
| 870.3700a | Prenatal developmental in (rat) | 47443291 (2006)<br>Acceptable/Guideline<br>0, 10, 25 or 200 mg/kg/day by gavage in 0.5% aqueous methylcellulose, GD 6 through 20 | **Maternal** NOAEL = 25 mg/kg/day<br>LOAEL = 200 mg/kg/day based on decreased body weight gain and food consumption.<br>**Developmental** NOAEL = 25 mg/kg/day<br>LOAEL = 200 mg/kg/day based on decreased fetal body weights. |

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| | | 94.5% a.i. | |
| 870.3700b | Prenatal developmental in (rabbit) | 47443292 (2008)<br>Acceptable/Guideline<br>0, 10, 25 or 60 mg/kg/day by gavage in 0.5% aqueous methylcellulose, GD 6 through 28<br>93.14% a.i. | **Maternal** NOAEL = 25 mg/kg/day<br>LOAEL = 60 mg/kg/day based on decreased maternal body weight gain and food consumption and macroscopic changes in the liver in one doe.<br>**Developmental** NOAEL = 60 mg/kg/day<br>LOAEL = not established (>60 mg/kg/day). |
| 870.3800 | Reproduction and fertility effects (rat) | 47443293 (2008)<br>Acceptable/Guideline<br>0, 150, 1000 or 8000 ppm in the diet; F1 high dose reduced to 4000 ppm at 5-17 days' postweaning<br>Average P/$F_1$ consumption (note: high dose not averaged due to F1 dose reduction)<br>M: 0, 10.4, 69.3 or 560.1 mg/kg/day (P males) and 317.6 mg/kg/day ($F_1$ males, due to reduction in dietary dose)<br>F: 0, 12.9, 85.2 or 656.2 mg/kg/day (P females) and 355.2 mg/kg/day ($F_1$ females, due to reduction in dietary dose)<br>93.14-94.5% a.i. | **Parental** NOAEL = 69.3/85.2 mg/kg/day M/F<br>LOAEL = 560.1/656.2 mg/kg/day M/F, based on coarse tremors in females from Weeks 6-17 and in gestation and lactation, decreased body weight/weight gain and food consumption and renal toxicity (tubular degeneration/ regeneration and increased weight) in males.<br>**Offspring** NOAEL = 69.3/85.2 mg/kg/day M/F<br>LOAEL = 317.6/355.2 mg/kg/day M/F, based on clinical signs (perianal, urine or nasal staining, diarrhea or soft stool, distended abdomen, weakness, tremors, myoclonus, increased activity and reactivity) and decreased pup body weights throughout postnatal period.<br>**Reproductive** NOAEL = 69.3/85.2 mg/kg/day M/F (based on F1 intakes)<br>LOAEL = 317.6/355.2 mg/kg/day M/F, based on delayed sexual maturation in males and females (% pups reaching criterion unaffected). |
| 870.4100a | Chronic toxicity (rat) | 47443296 (2007)<br>Acceptable/Guideline<br>0, 300, 3000 or 10,000 ppm in the diet (6000 in females after Day 280) equivalent to average daily intake of<br>M: 0, 14, 136 or 474 mg/kg/day;<br>F: 0, 19, 185 or 589 mg/kg/day<br>93.14% a.i. | NOAEL = 19 mg/kg/day F, 136 mg/kg/day M;<br>LOAEL = 185 mg/kg/day F, based on increased mortality, clinical signs of toxicity, mydriasis and absence of papillary reflex; 474 mg/kg/day M, based on decreased body weight/weight gain and food consumption. |
| 870.4100b | Chronic toxicity (dog) | 47443294 (2008; main study);47443295 (2007; dietary stability) | NOAEL = 2.0 mg/kg/day<br>LOAEL = 6/7 mg/kg/day M/F, based on axonal degeneration of nerve fibers in the brain, spinal cord and sciatic nerve in males and females. |

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| | | Acceptable/Guideline<br>0, 60, 225 or 450 ppm in the diet<br>M: 0, 2, 6 or 12 mg/kg/day;<br>F: 0, 2, 7 or 11 mg/kg/day<br>93.16% a.i. | Marginal body weight decreases early in study seen at 12/11 mg/kg/day M/F. |
| 870.4200a | Carcinogenicity (rat) | See 870.4300, below | |
| 870.4200b | Carcinogenicity (mouse) | 47743416 (2008)<br>Acceptable/Guideline<br>0, 50, 250 or 1000 ppm in diet<br>M: 0, 6.8, 34 or 142 mg/kg/day;<br>F: 0, 8.4, 42 or 168 mg/kg/day<br>93.14% a.i. | NOAEL = 34/42 mg/kg/day M/F<br>LOAEL = 142/168 mg/kg/day M/F, based on decreased body weight/weight gain and food consumption, M/F; renal and hepatotoxicity in males; stomach and ovarian toxicity in females.<br><br>**No evidence of carcinogenicity** |
| 870.4300 | Combined carcinogenicity/ chronic toxicity (rat) | 47743417 (2009)<br>Acceptable/Guideline<br>0, 300, 3000 or 10,000 ppm in the diet<br>M: 0, 12, 118 or 414 mg/kg/day;<br>F: 0, 17, 167 or 452 mg/kg/day<br>93.14% a.i. | NOAEL = 12/17 mg/kg/day M/F<br>LOAEL = 118/167 mg/kg/day M/F, based on decreased body weight/weight gain, signs of neurotoxicity (various symptoms, including dilated pupils, tremors, limb/movement effects, reduced activity/alertness) and renal toxicity in females, liver toxicity in males and females and atrophic seminal vesicles and increased TSH (Week 3 only) and thyroid colloid alteration in males. Thyroid alterations in males appeared to be secondary to liver effects. Decreased survival was observed at 452 mg/kg/day in females and both males and females showed more pronounced clinical signs of toxicity.<br>**No evidence of carcinogenicity** |
| Gene Mutation 870.5100 | Bacterial reverse gene mutation assay (*S. typhimurium*) | 47443297 (2006)<br>Acceptable/Guideline<br>0, 16, 50, 158, 500, 1581 or 5000 µg/plate in presence or absence of S9 activation. Trial 1 – plate incorporation method and Trial 2, pre-incubation method<br>90.32% a.i. | **Negative** +/-S9 activation in *S. typhimurium* strains TA98, TA100, TA 102, TA1535, TA1537 for increased frequency of revertant colonies up to cytotoxic (500 µg/plate) and precipitating concentrations (5000 µg/plate). |

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| Gene Mutation<br>870.5100 | Bacterial reverse gene mutation assay (*S. typhimurium*) | 47443301 (2007)<br>Acceptable/Guideline<br>Trial 1: 0, 15, 50, 158, 500, 1502 or 5000 µg/plate in the presence or absence of S9 activation, plate-incorporation method<br>Trial 2: 0, 100, 200, 400, 800, 1600 or 3200 µg/plate in the presence or absence of S9 activation, pre-incubation method<br>95.7% a.i. | **Negative** +/-S9 activation in *S. typhimurium* strains TA98, TA100, TA102, TA1535, TA1537 for increased frequency of revertant colonies up to cytotoxic (≥800 µg/plate) and precipitating (3200 µg/plate) concentrations. |
| Gene Mutation<br>870.5300 | Mammalian cell *in vitro* forward gene mutation (cultured V79 cells, HGPRT locus) | 47443302 (2006)<br>Acceptable/Guideline<br>0, 10, 100 or 1000 µg/mL in presence or absence of S9 activation<br>90.32% a.i. | **Negative** for increased frequency of mutation in CHO cells (not cytotoxic). |
| Cytogenetics<br>870.5375 | Mammalian *in vitro* cytogenetic assay (Chinese hamster V79 lung cells) | 47443305 (2006)<br>Acceptable/Guideline<br>4 hr exposure, 14 hr recovery period: 0, 15, 30, 60, 90 or 120 µg/mL in the absence of S9 activation; 0, 50, 100, 160, 200 and 240 µg/mL in the presence of S9 activation.<br>4 hr exposure, 26 hr recovery period: 0, 60, 90 and 120 in the absence of S9 activation; 0, 160, 200 and 240 µg/mL<br>18 hr exposure, no recovery period in the absence of S9 activation: 0, 4, 8, 16, 20 and 24 µg/mL<br>90.32% a.i. | **Negative** for induction of chromosomal aberrations above background in the presence or absence of S9 metabolic activation. Tested up to the limit of solubility (160 µg/mL, -S9) |
| Cytogenetics<br>870.5395 | Mammalian *in vivo* micronucleus assay (mouse) | 47443308 (2006)<br>Acceptable/Guideline<br>Two doses of 0, 10, 20 or | **Negative** for induction of increased frequency of micronucleated polychromatic erythrocytes in bone marrow at any treatment time. |

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| | | 40 mg/kg by IP injection in 0.5% aqueous Cremaphor vehicle administered 24 hrs apart; harvested 24 hrs after second dose<br>90.32% a.i. | |
| 870.6200a | Acute neurotoxicity screening battery (rat) | 47443310 (2008)<br>Acceptable/Guideline<br>0, 50, 100 or 2000 mg/kg by gavage in corn oil. Time of peak effect estimated at 50 min postdosing.<br>93.14% a.i. | NOAEL = 50 mg/kg<br>LOAEL = 100 mg/kg based on decreased motor and locomotor activity in females (threshold effect level). Lower NOAEL/LOAEL relative to subchronic study likely due to gavage vs. dietary administration. |
| 870.6200b | Subchronic neurotoxicity screening battery (rat) | 47443309 (2008)<br>Acceptable/Guideline<br>0, 200, 4000 or 8000/10,000 ppm (M/F) equivalent to average daily intake in the diet of<br>M: 0, 12.2, 243.6 or 585.7 mg/kg/day<br>F: 0, 15.1, 306.9 or 580.9 mg/kg/day<br>93.14% a.i. | NOAEL = 243.6/306.9 mg/kg/day M/F<br>LOAEL = 585.7/580.9 mg/kg/day M/F, based on decreased total session motor and locomotor activity in females, clinical signs/FOB effects in males and females (tremors, repetitive chewing motion and perianal and lacrimal staining), decreased body weights (females and cumulative body weight gain in males and females. |
| 870.6300 | Developmental neurotoxicity (rat) | 47443311 (2008)<br>Acceptable/Nonguideline<br>0, 150, 1000 or 7000 ppm in the diet (high dose reduced to 4000 ppm on LD4) equivalent to average daily intake in the diet of<br>0, 13, 83.8 or 432 mg/kg/day<br>93.14% a.i. | **Maternal** NOAEL = 83.8 mg/kg/day<br>LOAEL = 432 mg/kg/day, based on clinical signs at daily observation and FOB assessment (coarse tremors, dilated pupils and dilated pupils unresponsive to penlight, nasal staining, repetitive chewing movements), decreased body weights/weight gain and reduced number of litters (-17%).<br>**Offspring** NOAEL = 83.8 mg/kg/day<br>LOAEL = 432 mg/kg/day, based on decreased body weight through PND 21 in males and females. Males postweaning had slightly decreased body weights. Decreased motor activity (-29%) on PND 21 in males was considered treatment-related, but was not seen at other measurement times nor in females. |
| 870.7485 | Metabolism and pharmacokinetics | 47443312 (2008)<br>Acceptable/Guideline | Absorption was complete (>90% bioavailability) and rapid, with radioactivity |

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| | (rat) – tier 1 | Male rats given single gavage dose of either $^{14}$C-indane labeled or -triazine labeled indaziflam at 11.5-14.98 mg/kg. Mass balance groups – excreta collected for 3 days postdosing. Bile-duct cannulated groups – bile and excreta collected for 2 days postdosing.<br>99-100% radiochemical purity | found in bile by 1 hr postdosing and most radioactivity (generally around 90%) excreted by 24 hrs. Tissue levels of radioactivity were low (0.2% of administered dose by 3 days) with highest levels observed in the GIT, liver, kidney, skin and thyroid. In the bile duct-cannulated animals, tissue levels were about 2-4 times greater in the triazine-labeled group than the indane-labeled group but levels in other groups were similar. Excretion was largely fecal (62-70%), with significant biliary excretion observed. $CO_2$ exhalation was negligible. Parent compound was identified at between 2-16% of dose in urine and feces. Major routes of metabolism were oxidative pathways; glucuronide conjugation also observed. Major metabolite was carboxylic acid, found in urine, bile and feces. Numerous other metabolites identified or characterized; profile varied among dose groups. Other metabolites identified at low levels included the 3-hydroxyindane acid epimer, diaminotriazine and 3-ketohydroxymethyl metabolites. |
| 870.7485 | Metabolism and pharmacokinetics (rat) – tier 2 | 47743418 (2009)<br>Acceptable/Guideline<br>Single gavage doses as follows: (1) low dose mass balance studies in females given $^{14}$C-indane-labelled indaziflam at 4.8 mg/kg or $^{14}$-triazine-labelled indaziflam at 8.8 mg/kg; (2) high dose mass balance studies in males given $^{14}$C-indane-labelled indaziflam at 559 mg/kg or $^{14}$-triazine-labelled indaziflam at 723 mg/kg; (3) plasma pharmacokinetic experiments with indane-label at 2.9 mg/kg (females) or 13.7 mg/kg (males) or triazine-label at 13.2 mg/kg (females) or 16.3 mg/kg (males).<br>Radiochemical purity 99% | Absorption was rapid (radioactivity detected in blood by 5 minutes and peak blood concentrations observed between 40-60-minutes postdosing; rapidly decreasing thereafter) Females showed slightly higher absorption than males. Excretion was rapid (>87% by 24 hrs) and was equally distributed between urine and feces in females but was greater in feces in males (10:1). $CO_2$ excretion was negligible. Radioactivity was not retained at significant levels in tissues; the GIT, liver and skin showed the highest residues. The carboxylic acid metabolite was the major metabolite in both high dose males and low dose females, which was found in urine and feces. Additional metabolites present at >5% of dose included 3-hydroxyindane acid metabolite in low dose females, dihydroxy metabolite in low dose females and hydroxyethyl acid metabolite in the high dose males (indane-label). |
| 870.7600 | Dermal | 47743420 (2008) | Absorption was inversely proportional to dose, |

| Subchronic, Chronic, and Other Toxicity Profile for Indaziflam | | | |
|---|---|---|---|
| Guideline No. | Study Type | MRID No. (year)/ Classification /Doses | Results |
| | absorption, *in vivo* (rat) | Acceptable/Guideline<br>0.5, 2 or 5000 µg ai/ $cm^2$ on 12 $cm^2$ skin for 8 hrs to male rats; absorption evaluated after 8, 24, 72 and 168 hr postdosing<br>Radiochemical purity >98% | indicating saturation of skin penetration with increasing dose. Between 0.4-20.4% of the applied dose was recovered in combined residual carcass, excreta, blood and non-treated skin. Based on decreased radioactivity at the application site, the most conservative value for risk assessment is a dermal absorption of 42.7% observed at 0.5 µg ai/ $cm^2$ at 8 hr postapplication. |
| 870.7800 | Immunotoxicity - rat | 47443313 (2008)<br>Acceptable/Guideline<br>0, 300, 3000 or 6000 (females) or 10,000/6000 (males) ppm in the diet equivalent to average daily intake in the diet of<br>M: 0, 27.7, 258 or 528 mg/kg/day<br>F; 0, 31, 334.2 or 737.9 mg/kg/day<br>93.12% a.i. | **Systemic** NOAEL = 258.8/334.2 mg/kg/day M/F<br>LOAEL = 528/737.9 mg/kg/day M/F, based on mortality (one male sacrificed *in extremis)*, clinical signs of toxicity in males and females (including tremor, abnormal gait, pallor, hunched back), decreased food and water consumption in males and decreased body weight/weight gain in males and females.<br>**Immunotoxicity** NOAEL = 528/737.9 mg/kg/day M/F<br>LOAEL = not established (>528/737.9 mg/kg/day M/F) |
| Non-guideline | *In vitro* dermal absorption – rat and human skin | 47743419 (2007)<br>Acceptable/Nonguideline<br>Application of a 10µL/ volume of concentrated 500 mg/mL formulation and representative spray dilutions of 0.5, 0.2 or 1.0 mg/mL to excised human and rat dermatomed skin. Exposure duration was 24 hr.<br>Radiochemical purity >98% | Total absorbed dose decreased with increasing concentration, indicating saturation of skin penetration with increasing dose. Rat skin was 3.8 to 10.7 times more permeable than human skin over 24 hr at the concentrations tested. |

## A. Toxicological End Points and Doses Used in the Human Health Risk Assessment

The observed neurotoxic effects in rats and dogs serve as the basis for the risk assessment, since all endpoints were associated with the neurotoxic effects observed in the animal studies. The proposed use pattern is expected to result in dermal, inhalation and incidental oral exposures of short- and intermediate-term durations; therefore, long-term exposure and risk were not assessed.

1. Acute**:** EPA established an acute reference dose (aRfD) and an Acute Population Adjusted Dose (aPAD) for indaziflam of 0.50 mg/kg body wt, based on the NOAEL of 50 mg/kg body weight from the acute neurotoxicity study in rats and an uncertainty factor of 100. In this study, decreased motor and locomotor activity was observed in females at the "lowest observed adverse effect level" (LOAEL) of 100 mg/kg body wt.

2. Chronic Dietary: EPA established a chronic reference dose (cRfD) and a Chronic Population Adjusted Dose (cPAD) for indaziflam of 0.02 mg/kg body wt/day, based on the NOAEL of 2.0 mg/kg body wt/day from the chronic toxicity study in dogs and an uncertainty factor of 100. In this study, nerve fiber degeneration in the brain, spinal cord and sciatic nerve was observed at the LOAEL of 6/7 (M/F) mg/kg body wt/day.

3. Short- and Intermediate-Term Incidental Oral, Dermal and Inhalation: The same endpoint (toxic effect) and dose (NOAEL) were selected for assessing incidental oral, dermal and inhalation exposure. EPA selected the NOAEL of 7.5 mg/kg body wt/day from the subchronic toxicity study in dogs based on brain, spinal cord and sciatic nerve degenerative lesions observed at the LOAEL of 15 mg/kg body wt/day. Since the dermal and inhalation endpoints were selected from an oral study, a dermal absorption factor of 7.3% and an inhalation absorption factor of 100% were used in the relevant exposure assessments.

For all of these routes of exposure, EPA's Level of Concern (LOC) is a Margin of Exposure (MOE; calculated as the NOAEL ÷ exposure) of 100; the LOC is based on the uncertainty factor of 100, and MOEs less than 100 represent a potential risk concern.

4. Cancer: EPA has classified indaziflam as "Not Likely to be Carcinogenic to Humans" based on the lack of treatment-related tumors in the two-year rat and mouse bioassays and no concerns for mutagenicity.

A summary of the toxicological endpoints are shown in the table below:

| Summary of Toxicological Doses and Endpoints for Indaziflam for Use in Dietary and Non-Occupational Human Health Risk Assessments | | | | |
|---|---|---|---|---|
| Exposure/ Scenario | Point of Departure | Uncertainty/FQPA Safety Factors | RfD, PAD, Level of Concern for Risk Assessment | Study and Toxicological Effects |
| Acute Dietary (All Populations, including Infants and Children and Females 13-49 years of age) | NOAEL = 50 mg/kg/day | $UF_A$= 10X<br>$UF_H$= 10X<br>FQPA SF= 1X | Acute RfD = 0.5 mg/kg/day<br><br>aPAD = 0.5 mg/kg/day | Acute oral neurotoxicity in the rat LOAEL = 100 mg/kg/day, based on decreased motor and locomotor activity in females. |

| Summary of Toxicological Doses and Endpoints for Indaziflam for Use in Dietary and Non-Occupational Human Health Risk Assessments | | | | |
|---|---|---|---|---|
| Exposure/ Scenario | Point of Departure | Uncertainty/FQPA Safety Factors | RfD, PAD, Level of Concern for Risk Assessment | Study and Toxicological Effects |
| Chronic Dietary (All Populations) | NOAEL = 2 mg/kg/day | $UF_A$= 10X<br>$UF_H$= 10X<br>FQPA SF= 1X | Chronic RfD = 0.02 mg/kg/day<br><br>cPAD = 0.02 mg/kg/day | Chronic oral (dietary) toxicity in the dog LOAEL = 6/7 mg/kg/day M/F, based on nerve fiber degenerative lesions in the brain, spinal cord and sciatic nerve. |
| Incidental Oral, Short-term (1 to 30 days) and Intermediate-term (1 to 6 months) | NOAEL = 7.5 mg/kg/day | $UF_A$=10X<br>$UF_H$=10X<br>FQPA SF = 1X | Residential LOC for MOE = 100 | Subchronic oral (gavage) in the dog LOAEL = 15 mg/kg/day, based on axonal degenerative microscopic findings in the brain, spinal cord and sciatic nerve. |
| Dermal, Short-term (1 to 30 days) and Intermediate-term (1 to 6 months) | NOAEL = 7.5 mg/kg/day<br>DAF = 7.3% | $UF_A$=10X<br>$UF_H$=10X<br>FQPA SF = 1X | Residential LOC for MOE = 100 | Subchronic oral (gavage) in the dog LOAEL = 15 mg/kg/day, based on axonal degenerative microscopic findings in the brain, spinal cord and sciatic nerve. |
| Dermal, Long-Term (>6 months) | Not required for this assessment (exposure is seasonal; long-term occupational exposure scenarios are not anticipated). | | | |
| Inhalation, Short-term (1 to 30 days) and Intermediate-term (1 to 6 months) | NOAEL = 7.5 mg/kg/day<br>Inhalation absorption assumed to be 100% (default) relative to oral. | $UF_A$=10X<br>$UF_H$=10X<br>FQPA SF = 1X | Residential LOC for MOE = 100 | Subchronic oral (gavage) in the dog LOAEL = 15 mg/kg/day, based on axonal degenerative microscopic findings in the brain, spinal cord and sciatic nerve. |
| Inhalation, Long-term (>6 months) | Not required for this assessment (exposure is seasonal; long-term occupational exposure scenarios are not anticipated). | | | |
| Cancer (oral, dermal, inhalation) | Classification: "Not likely to be Carcinogenic to Humans" | | | |

| Summary of Toxicological Doses and Endpoints for Indaziflam for Use in Occupational Human Health Risk Assessments | | | | |
|---|---|---|---|---|
| Exposure/ Scenario | Point of Departure | Uncertainty Factors | Level of Concern for Risk Assessment | Study and Toxicological Effects |

| Summary of Toxicological Doses and Endpoints for Indaziflam for Use in Occupational Human Health Risk Assessments | | | | |
|---|---|---|---|---|
| Exposure/ Scenario | Point of Departure | Uncertainty Factors | Level of Concern for Risk Assessment | Study and Toxicological Effects |
| Dermal, Short-Term (1 to 30 days) and Intermediate-term (1 to 6 months) | NOAEL = 7.5 mg/kg/day DAF = 7.3% | $UF_A$=10X $UF_H$=10X | Occupational LOC for MOE = 100 | Subchronic oral (gavage) in the dog LOAEL = 15 mg/kg/day, based on axonal degenerative microscopic findings in the brain, spinal cord and sciatic nerve. |
| Dermal, Long-Term (>6 months) | Not required for this assessment (exposure is seasonal; long-term occupational exposure scenarios are not anticipated). | | | |
| Inhalation Short-Term (1 to 30 days) and Intermediate-Term (1 to 6 months) | NOAEL= 7.5 mg/kg/day. Inhalation absorption assumed to be 100% (default) relative to oral. | $UF_A$=10X $UF_H$=10X | Occupational LOC for MOE = 100 | Subchronic oral (gavage) in the dog LOAEL = 15 mg/kg/day, based on axonal degenerative microscopic findings in the brain, spinal cord and sciatic nerve. |
| Inhalation Long-Term (> 6 months) | Not required for this assessment (exposure is seasonal; long-term occupational exposure scenarios are not anticipated). | | | |
| Cancer (oral, dermal, inhalation) | Classification: "Not likely to be Carcinogenic to Humans" | | | |

## B. FQPA Safety Factor

Although there are no food uses associated with this decision, there are food uses pending review, and, therefore, EPA evaluated the potential impact of the decision on infants and children. The Agency determined that reliable data show that it would be safe to reduce the FQPA safety factor for infants and children to 1X based on the following findings:

- The toxicity database for indaziflam is considered complete and includes acceptable developmental toxicity studies in rats and rabbits, a two-generation reproductive toxicity study in rats, a developmental neurotoxicity in rats, acute and subchronic neurotoxicity screening studies in rats, and an immunotoxicity study.
- Although indaziflam is a neurotoxic chemical, there is no evidence of increased qualitative or quantitative susceptibility of offspring to neurotoxic effects in any of the available studies, including a developmental neurotoxicity study. Therefore, an additional uncertainty factor to account for neurotoxicity is unnecessary.
- There is no evidence that indaziflam results in increased pre- or postnatal susceptibility of rats or rabbits in the prenatal developmental studies or of rats in the 2–generation reproduction study. Effects on fetuses and offspring in these studies were observed at doses that also resulted in parental toxicity. The endpoints selected for risk assessment

are protective of potential developmental effects.

- There are no residual uncertainties identified in the exposure databases. EPA made conservative (protective) assumptions in the ground and surface water modeling used to assess exposure to indaziflam in drinking water. EPA used similarly conservative assumptions to assess post-application exposure of children including incidental oral exposure of toddlers. These assessments will not underestimate the exposure and risks posed by indaziflam.

## C. Cumulative Effects

Indaziflam and its metabolite fluoroethyldiaminotriazine (FDAT) contain a triazine moiety within their chemical structures. Several triazine herbicides were determined by EPA to have a common mechanism of toxicity based on their ability to disrupt the hypothalamic-pituitary-gonadal axis (US EPA, 2002). The triazine common mechanism group (TCMG) includes atrazine, simazine, propazine, and the metabolites desethyl-s-atrazine (DEA), deisopropyl-s-atrazine (DIA), and diaminochlorotriazine (DACT). Indaziflam and its metabolite FDAT were considered for incorporation into the TCMG by EPA based on structure; indaziflam, FDAT, and the TCMG members contain a common triazine moiety. However, EPA determined that it would not be appropriate to include indaziflam and FDAT in the TCMG for the following reasons: 1) The structure of indaziflam and FDAT are unique in that they contain a fluoroethyl group at the 2-position of the triazine ring, whereas the TCMG members contain a chlorine substituent at the 2-position of the triazine ring and; 2) Indaziflam and FDAT do not elicit the same toxicological responses shared by the TCMG members. The TCMG members cause an increase in mammary gland tumors in rats and multiple developmental effects such as attenuation of the luteinizing hormone surge, altered pregnancy outcome, and delayed preputial separation. Although delayed sexual maturation was observed in the rat reproductive toxicity study, the effects occurred only at the highest dose. None of the other effects associated with the TCMG members were observed in the carcinogenicity, developmental, or reproductive guideline studies for indaziflam. In a non-guideline study, FDAT delayed vaginal patency in a dose-dependent manner. However, none of the other characteristic developmental effects of the TCMG members were observed, and this effect only occurred at higher doses compared to DACT.

Therefore, 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 for indaziflam or its metabolite FDAT and any other substances, and indaziflam does not appear to produce a toxic metabolite produced by other substances. Therefore, for the purposes of this risk assessment, EPA has not assumed that indaziflam or its metabolite FDAT has a common mechanism of toxicity with other substances.

## D. Aggregate Risk Assessment

1. Drinking Water Risk:

A screening level drinking water exposure risk assessment was conducted using the Dietary Exposure Evaluation Model Database (DEEM-FCID $^{TM}$) and estimated drinking water

concentrations (EDWCs) generated using the Pesticide Root Zone Model /Exposure Analysis Modeling System (PRZM/EXAMS) and Screening Concentration in Ground Water (SCI-GROW) model.

Acute and chronic drinking water risk estimates are not of concern. Dietary exposure to indaziflam from drinking water will occupy 3.0% of the aPAD and 9.0% of the cPAD for infants, less than 1 year old, the population subgroup with the highest estimated exposure to indaziflam.

2. Residential Risk:

There is a potential for exposure of homeowners applying products containing indaziflam on home lawns. There is also a potential for post-application exposure of adults and children entering lawn and recreation areas, including golf courses, which have been treated with indaziflam. Indaziflam post-application inhalation exposures are expected to be negligible due to its low vapor pressure, low application rates, and the types of application equipment used (i.e., hand-held equipment that is not likely to generate a vapor). Therefore, a quantitative post-application inhalation exposure assessment was not considered necessary. This conclusion may change in the future if new policies for inhalation exposure and risk assessment are developed. EPA assessed the following residential exposure scenarios:

- short -term dermal and inhalation exposures of residential handlers using various types of application equipment and formulation types on the proposed residential use sites;
- short -term post-application dermal exposures of adults and children entering treated turf areas; and
- short-term postapplication incidental oral exposures of children from contact with treated turfgrass.

Since the doses and endpoints selected to assess short- and intermediate-term exposures are the same, a quantitative intermediate-term assessment was not completed; however, the short-term risk assessments are protective of intermediate-term risks. For residential and occupational exposure, the Agency uses the term Margin of Exposure (MOE) to refer to the risk associated with the exposure estimate. The MOE is defined as the dose, usually the No Observed Adverse Effects Level (NOAEL), divided by the estimated human exposure. An MOE of 100 means that the estimated level of human exposure is 100 times lower than the highest dose that produced no adverse effects in the relevant toxicology study. The greater the MOE, the lower the risk. An MOE of 100 or greater indicates there are no risks of concern.

Estimated short -term residential handler MOEs (combined dermal and inhalation exposures) range from 3,000 to 510,000. Estimated MOEs for short-term post-application dermal exposures of adults entering treated lawn areas range from 4,700 to 10,000. The estimated MOE for golfers playing on treated turf is 90,000. The estimated combined MOE for short-term postapplication exposures of children (including dermal and incidental oral exposures) is 1,800. Since all estimated MOEs are well above 100, they are not of concern.

| Residential Handler Exposure and Risk | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Turf Exposure Scenarios | Use Site | Dermal Unit Exposure (mg/lb) [a] | Inhalation Unit Exposure (mg/lb) [a] | Application Rate [b] (lb ai/acre) | Area Treated (A/day) | Dermal Dose [c] (mg/kg/day) | Dermal MOE [d] | Inhalation Dose [e] (mg/kg/day) | InhalationMOE [f] | Total MOE [g] |
| Mixer/Loader/Applicator | | | | | | | | | | |
| 1. Hose-end Sprayer "Mix Your Own" | lawns, hardscapes and ornamentals | 11 | 0.017 | 0.094 | 0.5 | 0.000539 | 14,000 | 1.14E-5 | 660,000 | 14,000 |
| 2. Belly Grinder | | 110 | 0.062 | 0.044 | | 0.00252 | 3000 | 1.95E-5 | 380,000 | 3000 |
| | | | | | 0.023 | 0.00011 | 68,000 | 8.96E-7 | 8,000,000 | 67,000 |
| 3. Hand-Held Pump Sprayer | | 56 | 0.0038 | 0.00063 | 5 gallons | 0.000184 | 41,000 | 1.71E-7 | 44,000,000 | 40,000 |
| Applicator | | | | | | | | | | |
| 4. Trigger sprayer Ready to Use | | 54 | 0.0019 | 0.00026 lbai/gal | 1 gallon | 0.000014 | 510,000 | 7.0E-9 | 100,000,000 | 510,000 |
| 5. Granular Push Spreader | lawns | 0.67 | 0.00088 | 0.044 | 0.5 | 0.0000154 | 490,000 | 2.77e-7 | 27,000,000 | 480,000 |
| 6. Hose End Sprayer Ready to Use | lawns, hardscapes and ornamentals | 11 | 0.011 | 0. 094 | | 0.000127 | 59,000 | 7.39E-6 | 1,000,000 | 56,000 |

a. Application Rate based on proposed labels
b. Dermal Dose = Unit Exposure (mg/lb) x Application Rate (lb ai/acre or lb ai/gal. ) x Area Treated (acre/day or gal./day) x 7.3% dermal absorption factor/BW
c. Dermal MOE = NOAEL (7.5 mg/kg/day)/Dermal Dose (mg/kg/day)
d. Inhalation Dose = Unit Exposure (mg/lb) x Application Rate (lb ai/acre or lb ai/gal. ) x Area Treated (acre/day or gal./day)/BW
e. Inhalation MOE = NOAEL (7.5 mg/kg/day)/Inhalation Dose (mg/kg/day)
g. Total MOE = NOAEL (7.5 mg/kg/day)/ (dermal dose + inhalation dose) mg/kg/day

| Postapplication Short-term Dermal Exposure and Risk | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Scenario | Application Rate (lb ai/A) | TTR [1] (µg/cm$^2$) | CF | Short-Term Tc (cm$^2$/hr) | ET (hrs) | BW (kg) | Dose [2] (mg/kg/day) | MOE [3] |
| Adults | | | | | | | | |
| Hose-end Sprayer | 0.094 (ornamentals & lawn) | 0.05264 | 0.001 | 14500 - lawn | 2 | 70 | 0.001592 | 4,700 |
| | 0.047 (lawn) | 0.02632 | | | | | 0.000796 | 9,400 |
| | 0.071 * | 0.03976 | | | | | 0.0012 | 6,000 |
| Hand-held Pump Sprayer | 0.094 (ornamentals & lawn) | 0.05264 | | | | | 0.001592 | 4,700 |
| Belly Grinder & Granular Push Spreader | 0.044 | 0.02464 | | | | | 0.000745 | 10,000 |
| | 0.071 | 0.03976 | | | | | 0.0012 | 6,000 |
| Golfer | | | | | | | | |
| Hose-end Sprayer or Granular Push Spreader | 0.071 * | 0.03976 | 0.001 | 500 | 4 | 70 | 0.0000829 | 90,000 |
| Children (3 to 6 years) | | | | | | | | |
| Hose-end Sprayer | 0.094 | 0.05264 | 0.001 | 5200 - lawn | 2 | 15 | 0.00266 | 2,800 |
| | 0.047 | 0.02632 | | | | | 0.0013 | 5,800 |
| | 0.071 * | 0.03976 | | | | | 0.0020 | 3,700 |
| Hand-held Pump Sprayer | 0.094 | 0.05264 | | | | | 0.00266 | 2,800 |
| Belly Grinder & Granular Push Spreader | 0.044 | 0.02464 | | | | | 0.001247 | 6,000 |
| | 0.071 * | 0.03976 | | | | | 0.0020 | 3,700 |

1. Turf Transferable Residues (TTR) = Application Rate x 0.05% x 11.2
2. Dermal Dose (mg/kg/day) = $\frac{\text{TTR (µg/cm}^2\text{) x 0.001 (mg/µg) x short-term TC (cm}^2\text{/hr) x ET (hr/day) x DAF (7.3\%)}}{\text{BW (kg)}}$
3. Short-term Dermal MOE = NOAEL (7.5 mg/kg/day)/Dermal Dose (mg/kg/day)

* = commercially applied

| Hand-To-Mouth Exposure and Risk for Children (3 to 6 years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Product | TTR [1] (ug/cm$^2$) | SA (cm$^2$/event) | FQ | SE | ET (hr/day) | CF | BW (kg) | Dose [2] (mg/kg/day) | MOE [3] |
| Short-term | | | | | | | | | |
| BCS AA10717 Turf Fertilizer (432-RUOL; 432-RUOA; and 432-RUOT) and 20 | 3.98E-2 | 20 | 20 | 0.5 | 2 | 0.001 | 15 | 1.06E-3 | 7,000 |

| Hand-To-Mouth Exposure and Risk for Children (3 to 6 years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Product | TTR [1] ($ug/cm^2$) | SA ($cm^2$/event) | FQ | SE | ET (hr/day) | CF | BW (kg) | Dose [2] (mg/kg/day) | MOE [3] |
| Short-term | | | | | | | | | |
| WSP (432-RUOO) | | | | | | | | | |
| Lawn 3FL (72155-IO) | 5.27E-2 | | | | | | | 1.41E-3 | 5,300 |

1. Turf Transferable Residues = (TTR) =
AR (0.071 or 0.094 lb ai/A) x F (0.05) x $(1\text{-}D)^0$ x CF2 (4.54E8 µg/lb) x CF3 (2.47E-8 acre /$cm^2$) = 03.98E-2 or 5.27E-2 $ug/cm^2$
2. Dose = $\frac{TTR_t \times SA \times FQ \times ET \times SE \times CF1}{BW}$
3. MOE = NOAEL (7.5 mg/kg/day)/HTM Dose (mg/kg/day)

| Object–to-Mouth Exposure and Risk for Children (3 to 6 years) | | | | | | |
|---|---|---|---|---|---|---|
| Product | GR [1] ($ug/cm^2$) | CF (mg/µg) | IgR ($cm^2$/day) | BW (kg) | Dose [2] (mg/kg/day) | MOE [3] |
| BCS AA10717 Turf Fertilizer (432-RUOL; 432-RUOA; and 432-RUOT) and 20 WSP (432-RUOO) | 1.59E-1 | 0.001 | 25 | 15 | 2.65E-4 | 28,000 |
| Lawn 3FL (72155-IO) | 2.11E-1 | 0.001 | 25 | 15 | 3.51E-4 | 21,000 |

1. GR (grass residue) = AR x F x $(1\text{-}D)^0$ x CF2 x CF3
2. Dose = $GR_0$ x IgR x CF1
3. MOE = NOAEL (7.5 mg/kg/day)/Dose (mg/kg/day)

| Soil Ingestion Exposure and Risk Risk for Children (3 to 6 years) | | | | | | |
|---|---|---|---|---|---|---|
| Product | SR [1] (ug/g) | CF (g/µg) | IgR (mg/day) | BW (kg) | Dose [2] (mg/kg/day) | MOE [3] |
| BCS AA10717 Turf Fertilizer (432-RUOL; 432-RUOA; and 432-RUOT) and 20 WSP (432-RUOO) | 5.33E-1 | 0.000001 | 25 | 15 | 3.56E-6 | 2.11E6 |
| Lawn 3FL (72155-IO) | 7.06E-1 | 0.000001 | 25 | 15 | 4.71E-6 | 1.59E6 |

1. $SR_0$ (soil residue) = AR(lb ai/A) x F(1) x $(1\text{-}D)^0$ x 0.67 x ($4.54x10^8$ µg/lg)x ($2.47 \times 10^{-8}$ A/$cm^2$)
2. Dose (mg/kg/day) = $SR_0$ (µg/g) x IgR (mg/day) x CF1 (g/µg)/BW (kg)
3. MOE = NOAEL (7.5 mg/kg/day)/ Dose (mg/kg/day)

| Postapplication Exposure and Risk for Incidental Ingestion of Granules | | | | | |
|---|---|---|---|---|---|
| Scenario | IgR (g/day) | F | CF1 (mg/g) | Dose [a] (mg/kg/day) | MOE [b] |
| Lawn 3FL Granule Reg No 72155-OR | 0.3 | 0.0005 | 1000 | 0.001 | 5,000 |

a. Dose = IgR x F x CF1 ÷ BW
b. MOE = acute dietary NOAEL (50 mg/kg/day)/Dose

| Combined Residential Exposure and Risk | | | | | |
|---|---|---|---|---|---|
| Product | Use Site | Handler Total MOE [1] | Post-application Dermal MOE [2] | Hand-to-Mouth MOE [3] | Combined MOE [4] |
| Adult | | | | | |
| Lawn 3FL Concentrate /Ready to spray 72155-IO | Lawns, hardscapes and ornamentals | 3,000 | 4,700 | NA | NA |
| Child | | | | | |
| Lawn 3 FL (72155-IO) | Lawns, hardscapes and ornamentals | NA | 2,800 | 5,300 | 1,800 |

1. See Indaziflam Residential Handler Exposure and Risk (Hand Held Pump)
2. See Dermal Postapplication Exposure and Risk (DFR data)
3. See Hand-To-Mouth Exposure and Risk
4. Adult Combined MOE = NA = HED does not combine adult handler and postapplication exposure
   Child Combinded MOE = NOAEL (7.5 mg/kg/day)/dermal postapplication dose (0.00266) + HTM dose (1.41E-3)

3. Aggregate Risk:

In the absence of food uses, an aggregate risk assessment was not needed for indaziflam. However, the screening-level combined exposures from drinking water and residential settings result in estimated MOEs of 1,100 for children and 1,700 for adults. Therefore, combined exposure and risk from drinking water and residential sources are not of concern.

| Short-Term Combined Risk Calculations | | | | | | |
|---|---|---|---|---|---|---|
| Population | LOC for Aggregate Risk | MOE drinking water | MOE Total Handler | MOE Dermal Postapplication | MOE Oral | Combined MOE (drinking water + residential) |
| US Population | 100 | 3700 | 3,000 | 4,700 | NA | 1700 |
| Child (3-6 yrs) | 100 | 2500 | NA | 2,800 | 5,300 | 1100 |

## E. Occupational Risk Assessment

Short- and intermediate-term occupational handler and postapplication exposures are possible based on the proposed use pattern. However, since the same endpoint and dose were selected for both short- and intermediate-term risk assessment, intermediate-term exposures were not assessed. Short-term exposure and risk estimates are protective of corresponding intermediate-term exposure and risk.

1. Handler Exposure and Risk:

EPA assessed short-term dermal and inhalation exposures of occupational handlers. Combined inhalation/dermal MOEs for occupational handlers range from 100 to 840,000. Since all MOEs are greater than or equal to 100, short -term risks for handlers are not of concern.

| Occupational Handler Exposures and Risks | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Exposure Scenario and Product | Target site | Application Rate[a] | Area Treated [b] | Dermal Unit Exposure (mg/lb) | Inhalation Unit Exposure (mg/lb) | Dermal Dose [c] (mg/kg/day) | Dermal MOE [d] | Inhalation Dose [c] (mg/kg/day) | Inhalation MOE [d] | Total MOE [g] |
| Mixer/Loader | | | | | | | | | | |
| Liquids for Aerial Applications (PHED) *Esplanade F* | forestry | 0.125 lb ai/A | 1200 A | 0.023 single layer/ gloves | | 0.003598 | 2100 | 0.002571 | 2900 | 1200 |
| Liquids for Ground Applications (PHED) *Esplanade F* | forestry | 0.125 lb ai/A | 200 A | | 0.0012 | 0.0006 | 13,000 | 0.000429 | 10,000 | 7,300 |
| Liquids for Ground, and Right-of-Way, Applications (PHED) *Esplanade 200SC* | non-crop areas * | 0.089 lb ai/A | 25 A | 2.9 | | 0.00673 | 1100 | 3.81E-5 | 196,000 | 1100 |
| Water Soluble Packets Ground Applications (PHED) *BCS-AA10717 20 WSP* | Non-crop areas, turf grass, nurseries, landscapes | 0.071 lb ai/A (non-crop) | 5 A | 0.021 | 0.00024 | 7.77E-6 | 960,000 | 1.22E-6 | 6,000,000 | 830,000 |
| | Golf course and fields grown for ornamentals | | 40 A | | | 6.22E-5 | 120,000 | 9.74E-6 | 770,000 | 100,000 |
| | sod farm and , Christmas tree farms | | 80 A | | | 0.000124 | 60,000 | 1.95E-5 | 390,000 | 52,000 |
| | forestry | 0.088 lb ai/A | 200 A | | | 0.000385 | 19,000 | 0.000060E-5 | 120,000 | 17,000 |
| Loading Granulars for Tractor Drawn Spreader Applications (PHED) *BCS-AA10717 plus turf* | Lawns, recreational fields and parks | 0.071 lb ai/A | 5 A | 0.0084 | 0.0017 | 3.11E-6 | 2,400,000 | 8.62E-6 | 870,000 | 640,000 |
| | golf course | | 40 A | | | 2.49E-5 | 300,000 | 6.9E-5 | 100,000 | 80,000 |

| Occupational Handler Exposures and Risks | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Exposure Scenario and Product | Target site | Application Rate[a] | Area Treated [b] | Dermal Unit Exposure (mg/lb) | Inhalation Unit Exposure (mg/lb) | Dermal Dose [c] (mg/kg/day) | Dermal MOE [d] | Inhalation Dose [c] (mg/kg/day) | Inhalation MOE [d] | Total MOE [g] |
| *fertilizer (0.0142%, 0.0213%, and 0.0284%)* | sod farm | | 80 A | | | 4.98E-5 | 150,000 | 0.000138 | 54,000 | 40,000 |
| Applicators | | | | | | | | | | |
| Applying Sprays via Aerial Equipment (PHED) | forestry | 0.125 lb ai/A *Esplanade F* | 1200 A | 0.005 Eng control[f] | 0.000068 Eng control[f] | 0.00078 | 9,600 | 0.000146 | 51,000 | 8,100 |
| Applying Sprays via Groundboom Equipment (PHED) | forestry | 0.125 lb ai/A *Esplanade F* | 200 A | 0.014 | 0.00074 | 0.000365 | 21,000 | 0.000264 | 28,000 | 12,000 |
| | forestry | 0.088 lb ai/A *BCS-AA10717 20 WSP* | | | | 0.000257 | 30,000 | 0.000186 | 40,000 | 17,000 |
| | non-crop areas * | 0.089 lb ai/A *Esplanade 200SC* | 40 A | | | 0.000052 | 140,000 | 3.76E-5 | 200,000 | 84,000 |
| | Non-crop sites, turf and recreation fields | 0.071 lb ai/A *BCS-AA10717 20 WSP* | 5 A | | | 0.00000518 | 1,400,000 | 3.75E-6 | 2,000,000 | 840,000 |
| | Golf course and field grown for ornamentals and nurseries | | 40 A | | | 0.0000415 | 180,000 | 3.0E-5 | 250,000 | 100,000 |
| | Sod and Christmas tree farms, | | 80 A | | | 0.0000829 | 90,000 | 6.0E-5 | 120,000 | 52,000 |
| Applying Sprays via Right-of-Way | non-crop areas * | 0.089 lb ai/A *Esplana* | 25 A | | 0.0039 | 0.0000325 | 230,000 | 0.000124 | 60,000 | 48,000 |

| Occupational Handler Exposures and Risks | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Exposure Scenario and Product | Target site | Application Rate[a] | Area Treated [b] | Dermal Unit Exposure (mg/lb) | Inhalation Unit Exposure (mg/lb) | Dermal Dose [c] (mg/kg/day) | Dermal MOE [d] | Inhalation Dose [c] (mg/kg/day) | Inhalation MOE [d] | Total MOE [g] |
| Equipment (PHED) | | *de 200SC* | | | | | | | | |
| Applying Granules using Solid Broadcast Spreader (PHED) | Lawns, turf, sports and recreation parks | 0.071 lb ai/A *BCS-AA10717 plus turf fertilizer (0.0142 %, 0.0213 %, and 0.0284 %)* | 5 A | 0.0099 | 0.0063 | 0.00000367 | 2,000,000 | 0.000032 | 230,000 | 210,000 |
| | golf courses | | 40 A | | | 0.0000293 | 260,000 | 0.000256 | 29,000 | 26,000 |
| | sod farms | | 80 A | | | .0000586 | 130,000 | 0.00051 | 15,000 | 13,000 |
| LCO Push Cyclone Granular Spreader (OMA001)OR ETF | Lawns, turf, sports and recreation parks | 0.071 lb ai/A | 5 A | 0.35 | 0.0073 | 0.00013 | 56,000 | 0.000037 | 200,000 | 45,000 |
| | golf courses | | 40 A | | | 0.0010 | 7,200 | 0.000296 | 25,000 | 5,600 |
| | sod farms | | 80 A | | | 0.0020 | 3,600 | 0.00532 | 12,000 | 2,800 |
| Belly Grinder (PHED) | Lawns, turf, sports and recreation parks | | 1 A | 10 | 0.062 | 0.00074 | 10,000 | 6.29E-5 | 120,000 | 9,300 |
| Flaggers | | | | | | | | | | |
| Flagging for Aerial Sprays Applications (PHED) *Esplanade F* | forestry | 0.125 lb ai/A | 350 A | 0.011 | 0.00035 | 0.00050 | 15,000 | 0.000219 | 34,000 | 10,000 |
| Mixer/Loader/Applicator | | | | | | | | | | |
| Mixing/Loading/ Applying Liquids with Low Pressure Handwand (PHED) | Forestry *Esplanade F* | 0.125 lb ai/A | 5 A | 100 | 0.03 | 0.0652 | 120 | 0.000268 | 28,000 | 110 |
| | | 0.0248 lb ai/gal | 40 gals | 0.43 | | 0.000445 | 17,000 | 0.000425 | 18,000 | 8,600 |
| | non-crop areas * | 0.089 lb ai/A | 5 A | | | 0.0464 | 160 | 0.0001 | 39,000 | 160 |

| Occupational Handler Exposures and Risks | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Exposure Scenario and Product | Target site | Application Rate[a] | Area Treated [b] | Dermal Unit Exposure (mg/lb) | Inhalation Unit Exposure (mg/lb) | Dermal Dose [c] (mg/kg/day) | Dermal MOE [d] | Inhalation Dose [c] (mg/kg/day) | Inhalation MOE [d] | Total MOE [g] |
| | *Esplanade 200SC* | | | 100 | | | | 91 | | |
| | | 0.0178 lb ai/gal | 40 gals | | | 0.074225 | 100 | 0.000305 | 25,000 | 100 |
| Mixing/Loading/ Applying Liquids with Back Pack (PHED) | Forestry *Esplanade F* | 0.125 lb ai/A | 5 A | 2.5 | | 0.00163 | 4600 | 0.000268 | 28,000 | 4,000 |
| | | 0.0248 | 40 gals | | | 0.00258 | 3,000 | 0.000425 | 18,000 | 2,500 |
| | non-crop areas* *Esplanade 200SC* | 0.089 lb ai/A | 5 A | | | 0.00116 | 6,500 | 0.000191 | 39,000 | 5,600 |
| | | 0.0178 lb ai/A | 40 gals | | | 0.00185 | 4,000 | 0.000305 | 25,000 | 3,500 |
| Mixing/Loading/ Applying Liquid Concentrates with a Handgun Sprayer (LCO ORETF) | Non-crop sites, turf, recreation fields, Christmas tree farms, ornamentals and nurseries | 0.071 *BCS-A10717 20 WSP* | 5 A | 0.64 | 0.0072 | 0.000237 | 32,000 | 0.0000365 | 200,000 | 27,000 |
| | | 0.089 *Esplanade 200SC* | | 0.45 | 0.0018 | 0.000209 | 36,000 | 0.0000 14E-5 | 650,000 | 34,000 |

***NOTE TABLE CONTAINS PRODUCTS AND USES WHICH ARE PENDING REGISTRATION WITH THE AGENCY***

a Application rates = maximum application rates from labels.

b Amount handled per day values are HED estimates of acres treated per day based on Exposure SAC SOP #9 "Standard Values for Daily Acres Treated in Agriculture," industry sources, and HED estimates.

c Dose (mg/kg/day) = Unit exposure(mg/lb ai) x App Rate (lb ai/acre) x Area Treated (acres/day) x %Absorption (7.3% dermal and 100% inhalation) / Body weight (70 kg).

d MOE = NOAEL (7.5 mg/kg/day) / Dose (mg/kg/day)

e All scenarios were run at Baseline (dermal - single layer clothing; Inhalation - no respirator) unless otherwise specified.

f. Eng Con: Engineering control is enclosed cab, or enclosed cockpit.

g. Total MOE = NOAEL (7.5 mg/kg/day) / Dermal Dose + Inhalation Dose (mg/kg/day)

*non crop areas = rail road yards, roadsides, ornamental and perennial plantings, fence rows, utilities, hardscapes, industrial, municipal and government site

2. Occupational Postapplication Exposure and Risk:

Occupational post-application dermal MOEs ranged from 1,400 to 45,000 and, therefore, are not of concern. Post-application inhalation exposures to indaziflam are expected to be negligible due to indaziflam's low vapor pressure and low application rates; in addition, with the exception of forestry applications, the types of application equipment used will minimize the formation of a vapor or fine aerosol that would lead to significant inhalation exposure. Although post-

application inhalation exposure was not assessed quantitatively, this approach may change in the future if new policies for inhalation exposure and risk assessment are developed.

| Postapplication Exposure and Risk for Indaziflam | | | | | |
|---|---|---|---|---|---|
| Scenario | Tc (cm2/hr) | DAT [1] | DFR [2](ug/cm2) | DOSE [3] (mg/kg/day) | MOE [4] |
| Sod farm & Golf Course Mowing | 500 | 0 | 0.016 | 0.000066 | 110,000 |
| hand weeding &, transplant of turf | 16,500 | 0 | | 0.002 | 3,400 |
| Outdoor ornamentals | 110 | 0 | 0.159 | 0.000145 | 51,000 |
| Moving ornamentals in pots to trucks and reorganizing | 400 | 0 | | 0.001 | 14,000 |
| Christmas Trees thinning | 3000 | 0 | 0.016 | 0.00040 | 19,000 |

1. DAT = Days after treatment
2. DFR = Dislodgeable Foliar Residue = application rate (0.071 lb ai/A) x (1- daily dissipation rate) t x 4.54E8 ug/lb x 24.7E-9 A/cm2 x % TTR (5% for turn and 2% for ornamentals) after initial treatment.
3. Dermal Dose = [TTR (ug/cm2) x Tc (cm2/hr) x 0.001 mg/ug x 8 hrs/day x 7.3%DA] ÷ body weight (70 kg)
4. MOE = NOAEL (7.5 mg/kg/day)/Dermal Dose

## V. ENVIRONMENTAL RISK

A summary of the environmental fate and ecological effects and risks of indaziflam as assessed in the Agency document titled "Environmental Fate and Ecological Risk Assessment for the Registration of Indaziflam" is provided below.

### A. Environmental Fate

Indaziflam is expected to be moderately mobile to mobile in the soil (Koc < 1000 mL/g oc), moderately persistent to persistent in aerobic soil (half-lives > 150 days), persistent in anaerobic soil (stable), and persistent in aerobic (half-lives > 200 days) and anaerobic (stable) aquatic environments. Indaziflam is subject to aqueous photolysis in clear shallow waters (half-life < 5 days). Indaziflam is not volatile and therefore, is not likely to be transported via atmospheric processes following application. It is a weak acid and is moderately soluble at environmental pH values. Indaziflam dissipates in the environment primarily through biotic degradation and leaching. Indaziflam degradates are more mobile than the parent ($K_{oc}$ < 100 mL/g oc), and were detected in field studies at the deepest depths sampled (105-120 cm). The degradate FDAT is mobile to highly mobile ($K_{oc}$ ranged from 10 – 50 mL/g oc) and has the potential to leach to the ground water.

The major transformation products resulting from the environmental degradation of indaziflam are: triazine-indanone; indaziflam-carboxylic acid; indaziflam-hydroxyethyl; indaziflam-olefin; fluoroethyldiaminotriazine; and fluoroethyltriazinanedione. The toxicity data show that indaziflam-olefin and indaziflam-hydroxyethyl are of similar toxicity to the TGAI, based on the most sensitive taxa tested, while indaziflam-hydroxyethyl, FDAT, and triazine indanone demonstrate toxicities at magnitudes 2-7 times less than that of the parent. Aquatic exposure estimates are based on a total toxic residue approach of indaziflam + residues of concern (two major photodegradates: indaziflam-olefin and indaziflam-hydroxyethyl). Terrestrial exposure estimates are based on the residue levels of indaziflam alone. Data are not generally available for screening level assessments to assess the terrestrial exposure and effects of degradates, as is the case for the assessment of indaziflam. The conservative 35-day foliar dissipation half-life used in the terrestrial modeling may account for the formation and toxicity of the degradates (assuming the degradates are not any more toxic than the parent). Any effects of the degradates to terrestrial plants that might occur over a 21 day time period would be captured by the nature of the terrestrial plant studies conducted on indaziflam's formulated products. Bioaccumulation is not expected for indaziflam.

To address concerns with the potential leaching of indaziflam that may result from the persistence and mobility described above, labels will be required to have language including surface and ground water advisories that stress the potential of runoff after treatment and descriptions of conditions that may promote leaching to groundwater.

**B. Ecological Risk**

Ecological risk characterization integrates the results of the exposure and ecotoxicity data to evaluate the likelihood of adverse ecological effects. The means of integrating the results of exposure and ecotoxicity data is called the quotient method. For this method, risk quotients (RQs) are calculated by dividing exposure estimates by ecotoxicity values, both acute and chronic (RQ = Exposure/Toxicity). RQs are then compared to EPA's levels of concern (LOCs). The LOCs are criteria used by the Agency to indicate potential risk to nontarget organisms. The criteria indicate whether a pesticide, when used as directed, has the potential to cause adverse effects to nontarget organisms.

The ecotoxicity endpoints derived from the results of short-term laboratory studies that assess acute effects are: (1) $LC_{50}$ (fish and birds); (2) $LD_{50}$ (birds and mammals); (3) $EC_{50}$ (aquatic plants and aquatic invertebrates) and; (4) $EC_{25}$ (terrestrial plants). The endpoints derived from the results of long-term laboratory studies that assess chronic effects are the NOAEL and LOAEL for birds and mammals and no observed adverse effect concentration (NOAEC) and the lowest observed adverse effect concentration (LOAEC) for fish and aquatic invertebrates. Risk presumptions along with the corresponding RQs and LOCs are shown in the table below.

**Risk Presumptions for Non-target Organisms**

| Risk Presumption | RQ | LOC |
|---|---|---|
| Terrestrial Animals | | |
| Acute High Risk | EEC*/LC50 or LD50/sqft2 or LD50/day3 | ≥0.5 |

| | | |
|---|---|---|
| Acute Restricted Use | EEC/LC50 or LD50/sqft2 or LD50/day (or LD50 < 50 mg/kg) | ≥0.2 |
| Acute Endangered Species | EEC/LC50 or LD50/sqft2 or LD50/day | ≥0.1 |
| Chronic Risk | EEC/NOAEL | ≥1 |
| Aquatic Animals | | |
| Acute High Risk | EEC/LC50 or EC50 | ≥0.5 |
| Acute Restricted Use | EEC/LC50 or EC50 | ≥0.1 |
| Acute Endangered Species | EEC/LC50 or EC50 | ≥0.05 |
| Chronic Risk | EEC/NOAEC | ≥1 |
| Terrestrial and Semi-Aquatic Plants | | |
| Acute High Risk | EEC/EC25 | ≥1 |
| Acute Endangered Species | EEC/EC50 or NOAEC | ≥1 |
| Aquatic Plants | | |
| Acute High Risk | EEC/EC50 | ≥1 |
| Acute Endangered Species | EEC/EC50 or NOAEC | ≥1 |

*EEC = Estimated environmental concentration

The calculated risk quotients represent a screening level assessment. Screening level assessments are based on conservative assumptions. For example, screening level assessments always assume the maximum labeled rate, the maximum number of applications, and the shortest treatment interval between applications are always used.

1. Aquatic Organisms

Indaziflam is highly toxic ($EC_{50}$ = 0.1 – 1 mg a.i./L) to freshwater and estuarine/marine fish, moderately toxic ($EC_{50}$ = 1 -10 mg a.i./L) to highly toxic ($EC_{50}$ = 0.1 – 1 mg a.i./L) to estuarine invertebrates, and slightly toxic ($EC_{50}$ = 10 - 100 mg a.i./L) to moderately toxic ($EC_{50}$ = 1 -10 mg a.i./L) to freshwater invertebrates on an acute exposure basis. However, due to the proposed uses of indaziflam and its subjectivity to aqueous photolysis, exposure to freshwater and estuarine/marine fish and invertebrates is expected to be limited. All RQs for freshwater fish, aquatic-phase amphibians, and freshwater invertebrates are below the LOC for acute and chronic risk to listed and non-listed species. All RQs for estuarine and marine fish and invertebrates are below the LOC for acute risk to listed and non-listed species. Chronic data is unavailable to assess chronic effects on esturine/maine fish and invertebrates. Accordingly, risk to this taxon was presumed in the risk estimation. An estimate of the chronic endpoint for estuarine/marine fish is a NOAEC of 578 µg total ai/L and RQs < 0.01. Based on this extrapolation, chronic risk to estuarine/marine fish is not expected. Indaziflam's limited solubility under realistic conditions will likely limit chronic effects to estuarine/marine invertebrates. However, due to the lack of chronic effects data for estuarine/marine invertebrates, the Agency has to presume that indaziflam is toxic to invertebrates for chronic exposure. Chronic effects studies for

invertebrates are required. As is common with many herbicides, indaziflam is toxic to nonvascular and vascular aquatic plants. The LOC was exceeded for aquatic vascular plants (see page 71-72 of the Environmental Fate and Ecological Risk Assessment; RQ = 7-101) and aquatic vascular and non-vascular plants listed under the Endangered Species Act (discussed further in the document under Endangered Species Act).

The Agency's strategy to mitigate these risks involves label language that is intended to keep the pesticide on the intended treatment area, and thereby reducing the potential for exposure to non-target plants and animals. For example, buffer strips and spray drift management language will be required on the labeling for EPA Reg. 432-RUOO (1499) BCS-AA10717 20WSP Herbicide, which advises users of applicator responsibilities and offers specific techniques to reduce the possibility of spray drift. In addition, the use of surface water advisories (as described above in section A. Environmental Fate) will be required on all labeling, which may further reduce possible exposure to non-target plants and animals.

2. Terrestrial Organisms

Indaziflam is practically nontoxic ($LD_{50}/LC_{50} > 2{,}000$ mg a.i./L) to birds on both an acute oral and subacute dietary exposure basis. As a minimum level of risk, none of the RQs for any proposed use of indaziflam exceeded the Agency's chronic risk to birds LOC of 1.0. However, the maximum direct chronic risk to birds is unknown and can't be determined based on the available data. For chronic studies, treatment-related effects on adult female weight gain, adult male weight gain, and adult food consumption were observed in avian reproduction studies using the mallard duck. Due to the lack of data, it is presumed that indaziflam is toxic to birds for chronic exposure. A secondary study on the reproductive effects in the mallard duck is required. Indaziflam is practically non-toxic ($LD_{50} > 2{,}000$ mg a.i./L) to mammals on an acute and chronic exposure basis. Indaziflam is practically nontoxic to honey bees. Affects to body weight were observed to earthworms from a 14-day study at concentrations of 562-1000 mg a.i/kg dw soil. An estimate of the expected concentration of indaziflam in real world soil conditions is 800 times smaller than the most sensitive effects endpoint from earthworm toxicity studies. Therefore, the potential for risk to earthworms from exposure to indaziflam in soil is not expected.

As is common with many herbicides, terrestrial plants are sensitive to indaziflam. The Agency's LOC was exceeded for monocots and dicots (see page 75 of the Environmental Fate and Ecological Risk Assessment; spray drift RQ = 1-11, dry area RQ = 2-23, and semi-aquatic area RQ = 11-125) and listed terrestrial plants under the Endangered Species Act (discussed further in the document under Endangered Species Act). Mitigating the risks to non-target terrestrial plants and animals involves label language that is intended to keep the pesticide on the intended treatment area.

## VI. REGULATORY DECISION

The Agency registered a technical, a manufacturing use product, and seven end use products for use on residential and commercial areas (lawns, ornamentals, and hardscapes including patios, walkways, etc.), turf (parks, cemeteries, golf courses, sod farms, sports fields, and commercial

lawns), field grown ornamentals and Christmas trees, commercial nursery and landscape plantings, and forestry sites. As required by FIFRA, the Agency published a notice of receipt of applications (dated January 27, 2010; no comments were received) to register pesticide products containing the new active ingredient, indaziflam.

The human health risk assessment concluded that the database is complete and adequate for a dietary, residential, and occupational assessment. The environmental fate and effects review concluded that the database is adequate for a screening level assessment. However, because of uncertainty regarding chronic risk to birds and estuarine and marine invertebrates, the Agency has determined additional data requirements are required to better characterize risk. These studies were required as a condition of the registration of indaziflam:

1. An additional avian reproduction study on Mallard duck (OPPTS 850.2300)
2. An estuarine/marine invertebrate life cycle toxicity study (OPPTS 850.1350)

In order to reduce the risk to non-target plant and animals the following label language was required:

<u>All End-Use Product Labels</u>

"Ground Water Advisory: This pesticide has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow."

"Surface Water Advisory: This pesticide may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having a high potential for reaching surface water via runoff for several months or more after application."

"Environmental Hazards
This Product is toxic to fish, aquatic invertebrates, and plants. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean water mark. Do not contaminate water when disposing of rinseate or washwater. This product may contaminate water through spray drift or runoff. Follow directions for use to avoid spray drift and runoff. A level well maintained vegetative buffer strip between areas to which this product is applied and surface water features including ponds, streams, and springs will reduce the potential for contamination of water from rainfall runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours."

<u>All Manufacturing-Use Product Labels</u>

"Environmental Hazards:
This pesticide is toxic to fish, aquatic invertebrates, and plants. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other water unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do

not discharge effluent containing this product into sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA."

All Occupational Use Labels:

"For use on sod farms, golf courses, and non-crop areas (excluding lawns), do not apply within 25 feet of ponds, lakes, rivers, streams, ditches, wetlands, and habitat containing aquatic and semi-aquatic plants. For forestry uses, do not apply within 50 feet of ponds, lakes, rivers, streams, ditches, wetlands, and habitat containing aquatic and semi-aquatic plants."

"Do Not Apply by Air."

"Spray Drift Management

Spray equipment and weather affect spray drift. Consider all factors when making application decisions. Where states have more stringent regulations, they must be observed. Avoiding spray drift is the responsibility of the applicator or grower. To reduce the potential for drift, the application equipment must be set to apply medium to large droplets (i.e., ASAE Standard 572) with corresponding spray pressure. Use high flow rate nozzles to apply the highest practical spray volume. With most nozzle types, narrower spray angles produce larger droplets. Follow the nozzle manufacturer's directions on pressure, orientation, spray volume, etc., in order to minimize drift and optimize coverage and control.

Golf Course, Residential, and Commercial Lawns
Set the boom and make applications at the lowest height that safely permits uniform coverage of the soil and minimizes droplet evaporation. For use on golf courses and commercial lawns, the boom height must be no higher than 3 feet above the ground and nozzles tips must be set to spray out medium to very coarse spray droplets. Applications to residential lawns must be made by equipment that maintains coarse spray droplets (to reduce drift).

Ornamentals
For deciduous ornamental plants, the spray must be directed at the base of the plant or away from the plant but as not to come in contact with the foliage as some leaf malformations or discoloration may occur. Dormant deciduous trees are tolerant to indaziflam herbicide.

Conifers including Christmas trees are tolerant to foliar applications of indaziflam. In Christmas tree farm operations, direct the spray to the base of the trees on a band or broadcast application.

Wind
Avoid making applications when spray particles may be carried by air currents to areas where sensitive crops and non-target plants are growing. Do not spray near sensitive plants if wind is gusty, below 2 mph, or in excess of 10 mph and moving in the direction of adjacent areas of sensitive crops or plants. Do not apply during temperature inversions. Always make applications when there is some air movement to determine the direction and distance of possible spray drift.

Local terrain may influence wind patterns; the applicator must be familiar with local conditions and understand how they may impact spray drift. Boom or nozzle shielding can reduce the effects of wind or air currents on drift. Verify that the shields do not interfere with uniform deposition of product prior to application.

Temperature Inversion
A surface temperature inversion (i.e., increasing temperature with increasing altitude) greatly increases the potential for drift. Avoid application when conditions are favorable to inversion. Presence of ground fog is a good indicator of a surface temperature inversion.

Sensitive Areas
Sensitive areas to this product are defined as bodies of water (ponds, lakes, rivers, streams, and ditches), wetlands, habitat for endangered species, and non-labelled agricultural crop areas. Applicators must take all precautions necessary to keep spray drift from reaching sensitive areas."

**Public Interest**

The Agency believes that the registration of indaziflam is in the public interest (based on "Review of Public Interest Finding Document of November 19, 2009). Indaziflam controls a broad spectrum of weeds, including species which are difficult to eliminate (including blue grass, goose grass, and crab grass). Indaziflam has greater efficacy in controlling annual blue grass in turf compared to prodiamine and pendimethalin. Indaziflam has a unique mode of action which is not found in other herbicides used for grass weed control and can be used as a tool in herbicide resistant management programs in turf and ornamentals. Indaziflam can be used in combination with other herbicides for a long-term and broader control of grasses and broadleaf weeds. Indaziflam demonstrates lower carcinogenic potential compared to prodiamine, oxadiazon, and pendimethalin (these active ingredients are considered carcinogens).

**Endangered Species Act**

The Endangered Species Act required federal agencies to ensure that their actions are not likely to jeopardize listed species or adversely modify designated critical habitats. The Agency generally will identify pesticides whose use may cause adverse impacts on federally listed endangered and threatened species through the registration review program. If potential effects are identified EPA will evaluate the need to take steps to mitigate those effects and will also generally initiate consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service as appropriate, to obtain their biological opinion regarding the potential effects.

The ecological assessment that EPA conducted for this registration action does not, in itself, constitute a determination as to whether a specific species or critical habitat may be harmed by the pesticide. Rather, this assessment serves as a screen to determine the need for any species specific assessment that will evaluate whether exposure may be at levels that could cause harm to specific listed species and their critical habitat. That assessment refines the screening-level assessment to take into account the geographic area of pesticide use in relation to the listed

species, the habits and habitat requirements of the listed species, etc. If the Agency's specific assessments for indaziflam result in the need to modify use of the pesticide, any geographically specific changes to the pesticide's registration will be implemented through the process described in the Agency's Federal Register Notice (54 FR 27984) regarding implementation of the Endangered Species Protection Program. Until that species specific analysis is completed, the risk mitigation measures being implemented through this registration action will help to reduce the likelihood that endangered and threatened species may be exposed to indaziflam at levels of concern.

A determination that there is a likelihood of potential effects to a listed species may result in further limitations on the use of the pesticide, other measures to mitigate any potential effects, and/or consultations with the Fish and Wildlife Service or National Marine Fisheries Service, as necessary. If the Agency determines use of indaziflam "may affect" listed species or their designated critical habitat, EPA will employ the provisions in the Services regulations (50 CFR Part 402).

**Contact Person at EPA**

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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.

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## 61-1 Chemical Identity


| MRID | Citation Reference |
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## 61-2 Description of Beginning Materials and Manufacturing Proces

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| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide |

| | |
|---|---|
| | Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 61-3 Discussion of Formation of Impurities

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished |

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|---|---|
| | study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 62-1 Preliminary Analysis

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 62-2 Certification of limits

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 62-3 Analytical Method

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |

47488701 Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p.

47488801 Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p.

47488901 Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p.

47489001 Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p.

47489101 Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p.

47489201 Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p.

47489301 Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p.

47489401 Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p.

## 63-2 Color

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide |

| | |
|---|---|
| | Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-3 Physical State

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-4 Odor

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-5 Melting Point

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |

## 63-6 Boiling Point

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study |

prepared by Bayer Corp. 664 p.

## 63-7 Density

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-8 Solubility

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |

## 63-9 Vapor Pressure

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. |

Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p.

## 63-11 Oct/Water partition Coef.

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |

## 63-12 pH

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-13 Stability

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

| | |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |

## 63-14 Oxidizing/Reducing Action

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |

## 63-15 Flammability

| MRID | Citation Reference |
|---|---|
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-16 Explodability

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |

## 63-17 Storage stability

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

| | |
|---|---|
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |

## 63-18 Viscosity

| MRID | Citation Reference |
|---|---|
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |

## 63-20 Corrosion characteristics

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |

## 71-1 Avian Single Dose Oral Toxicity

| MRID | Citation Reference |
|---|---|
| 47443240 | Stoughton, T. ; Christ, M. (2008) Toxicity of AE 1170437 Technical During an Acute Oral LD50 with the Northern Bobwhite Quail (Colinus virginianus). |

Project Number: M/303029/01/1, EBDHP028. Unpublished study prepared by Bayer CropScience. 29 p.

## 71-2 Avian Dietary Toxicity

| MRID | Citation Reference |
|---|---|
| 47443241 | Stoughton, T.; Christ, M. ; Lam, C. (2008) Technical AE 1170437: A Subacute Dietary LC50 with Northern Bobwhite. Project Number: M/303033/01/1, EBDHP030. Unpublished study prepared by Bayer CropScience. 37 p. |
| 47443242 | Stoughton, T.; Lam, C. (2008) Technical AE 1170437: A Subacute Dietary LC50 with Mallards. Project Number: M/303037/01/1, EBDHP031. Unpublished study prepared by Bayer CropScience. 37 p. |

## 71-4 Avian Reproduction

| MRID | Citation Reference |
|---|---|
| 47443243 | Christ, M. ; Lam, C. (2008) Effect of Technical AE 1170437 on Northern Bobwhite Quail (Colinus virginianus) Reproduction. Project Number: M/304696/01/1, EBDHP032. Unpublished study prepared by Bayer CropScience. 72 p. |
| 47443244 | Christ, M. ; Lam, C. (2008) Toxicity of AE 1170437 Technical on Reproduction to the Mallard Duck (Anas platyrhynchos) and Modified Exposure of AE 1170437 Technical on Reproduction to the Mallard Duck (Anas platyrhynchos). Project Number: M/304690/01/1, EBDHP033, EBUFL002. Unpublished study prepared by Bayer CropScience. 121 p. |

## 72-1 Acute Toxicity to Freshwater Fish

| MRID | Citation Reference |
|---|---|
| 47443229 | Matlock, D.; Lam, C. (2008) Acute Toxicity of AE 1170437 Technical to the Fathead Minnow (Pimephales promelas) under Static Conditions. Project Number: M/302402/01/1, EBDHP122. Unpublished study prepared by Bayer CropScience. 46 p. |
| 47443230 | Matlock, D.; Lam, C. (2008) Acute Toxicity of BCS_AA10365 (AE 1170437-diaminotriazine) to the Fathead Minnow (Pimephales promelas) under Static Conditions. Project Number: M/302862/01/1, EBDHP126. Unpublished study |

prepared by Bayer CropScience. 43 p.

47443231 Matlock, D.; Lam, C. (2008) Acute Toxicity of AE 2158969 (AE 1170437-carboxylic acid) to the Fathead Minnow (Pimephales promelas) Under Static Conditions. Project Number: M/302522/01/1, EBDHP125. Unpublished study prepared by Bayer CropScience. 43 p.

47443233 Banman, C. ; Lam, C. (2007) Acute Toxicity of AE 1170437 Technical to the Bluegill (Lepomis machrochirus) under Static Conditions. Project Number: M/288881/01/1, EBDHP018. Unpublished study prepared by Bayer CropScience. 41 p.

47443234 Banman, C. ; Hoffmann, J. ; Lam, C. (2008) Acute Toxicity of AE 1170437 Technical to the Trout (Oncorhynchus mykiss) Under Static Conditions. Project Number: M/293173/02/1, EBDHP039/1. Unpublished study prepared by Bayer CropScience. 40 p.

## 72-2 Acute Toxicity to Freshwater Invertebrates

| MRID | Citation Reference |
|---|---|
| 47443226 | Banman, C.; Hoffmann, J.; Lam, C. (2006) Acute Toxicity of AE 1170437 Technical to the Daphnia magna under Static Conditions. Project Number: M/282376/01/2, EBDHP021. Unpublished study prepared by Bayer CropScience. 38 p. |

## 72-3 Acute Toxicity to Estuarine/Marine Organisms

| MRID | Citation Reference |
|---|---|
| 47443232 | Banman, C.; Lam, C. (2007) Acute Toxicity of AE 1170437 Technical to the Sheepshead Minnow (Cyprinodon variegatus) Under Static Conditions. Project Number: M/288882/01/1, EBDHP019. Unpublished study prepared by Bayer CropScience. 43 p. |

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

| MRID | Citation Reference |
|---|---|
| 47443235 | Banman, C. ; Roberts, J. ; Lam, C. (2007) Chronic Toxicity of AE 1170437 Technical to the Daphnia magna Under Static Renewal Conditions. Project Number: M/291493/01/1, EBDHP053. Unpublished study prepared by Bayer |

CropScience. 69 p.

47443236 Banman, C. ; Roberts, J. ; Lam, C. (2007) Early Life Stage Toxicity of AE 1170437 Technical to the Fathead Minnow (Pimephales promelas) Under Flow-through Conditions. Project Number: M/292051/01/1, EBDHP020. Unpublished study prepared by Bayer CropScience. 100 p.

## 72-6 Aquatic org. accumulation

| MRID | Citation Reference |
|---|---|
| 47443237 | Matlock, D.; Fischer, D. (2008) [Triazine-2,4-(Carbon 14)] AE 1170437-Bioconcentration and Biotransformation in Bluegill Sunfish (Lepomis macrochirus). Project Number: M/303425/01/1, MEDHP026. Unpublished study prepared by Bayer CropScience. 218 p. |

## 81-1 Acute oral toxicity in rats

| MRID | Citation Reference |
|---|---|
| 47488902 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0284 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-Specific and Extrapolated Data. Project Number: M/304571/01/1, BES07/08/1, BES07/08/1A. Unpublished study prepared by Bayer Environmental Sciience. 11 p. |
| 47489002 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0213 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-specific and Extrapolated Data. Project Number: M/304580/01/1, BES07/08/2. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489102 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0142 percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304590/01/1, BES07/08/3. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489402 | Sargent, D. (2008) Acute Toxicity of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304229/01/1, BA07/08. Unpublished study prepared by Bayer Advanced. 11 p. |

## 81-2 Acute dermal toxicity in rabbits or rats

| MRID | Citation Reference |
|---|---|
| 47488902 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0284 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-Specific and Extrapolated Data. Project Number: M/304571/01/1, BES07/08/1, BES07/08/1A. Unpublished study prepared by Bayer Environmental Sciience. 11 p. |
| 47489002 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0213 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-specific and Extrapolated Data. Project Number: M/304580/01/1, BES07/08/2. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489102 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0142 percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304590/01/1, BES07/08/3. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489402 | Sargent, D. (2008) Acute Toxicity of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304229/01/1, BA07/08. Unpublished study prepared by Bayer Advanced. 11 p. |

## 81-3 Acute inhalation toxicity in rats

| MRID | Citation Reference |
|---|---|
| 47488902 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0284 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-Specific and Extrapolated Data. Project Number: M/304571/01/1, BES07/08/1, BES07/08/1A. Unpublished study prepared by Bayer Environmental Sciience. 11 p. |
| 47489002 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0213 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-specific and Extrapolated Data. Project Number: M/304580/01/1, BES07/08/2. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489102 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0142 percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304590/01/1, BES07/08/3. Unpublished study prepared by Bayer Environmental Science. 11 |

p.

47489402 Sargent, D. (2008) Acute Toxicity of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304229/01/1, BA07/08. Unpublished study prepared by Bayer Advanced. 11 p.

## 81-4 Primary eye irritation in rabbits

| MRID | Citation Reference |
|---|---|
| 47488902 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0284 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-Specific and Extrapolated Data. Project Number: M/304571/01/1, BES07/08/1, BES07/08/1A. Unpublished study prepared by Bayer Environmental Sciience. 11 p. |
| 47489002 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0213 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-specific and Extrapolated Data. Project Number: M/304580/01/1, BES07/08/2. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489102 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0142 percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304590/01/1, BES07/08/3. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489402 | Sargent, D. (2008) Acute Toxicity of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304229/01/1, BA07/08. Unpublished study prepared by Bayer Advanced. 11 p. |

## 81-5 Primary dermal irritation

| MRID | Citation Reference |
|---|---|
| 47488902 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0284 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-Specific and Extrapolated Data. Project Number: M/304571/01/1, BES07/08/1, BES07/08/1A. Unpublished study prepared by Bayer Environmental Sciience. 11 p. |
| 47489002 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0213 Percent Plus |

| | |
|---|---|
| | Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-specific and Extrapolated Data. Project Number: M/304580/01/1, BES07/08/2. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489102 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0142 percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304590/01/1, BES07/08/3. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489402 | Sargent, D. (2008) Acute Toxicity of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304229/01/1, BA07/08. Unpublished study prepared by Bayer Advanced. 11 p. |

## 81-6 Dermal sensitization

| MRID | Citation Reference |
|---|---|
| 47488902 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0284 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-Specific and Extrapolated Data. Project Number: M/304571/01/1, BES07/08/1, BES07/08/1A. Unpublished study prepared by Bayer Environmental Sciience. 11 p. |
| 47489002 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0213 Percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Formulation-specific and Extrapolated Data. Project Number: M/304580/01/1, BES07/08/2. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489102 | Sargent, D. E. (2008) Acute Toxicity of BCS-AA10717 0.0142 percent Plus Turf Fertilizer Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304590/01/1, BES07/08/3. Unpublished study prepared by Bayer Environmental Science. 11 p. |
| 47489402 | Sargent, D. (2008) Acute Toxicity of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/304229/01/1, BA07/08. Unpublished study prepared by Bayer Advanced. 11 p. |

## 123-1 Seed germination/seedling emergence and vegitative vigor

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

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|---|---|
| 47443246 | Bach, F.; Nguyen, D. (2008) AE 1170437 WP 20 Percent w/w: Effects on the Seedling Emergence and Seedling Growth of Ten Species of Non-target Terrestrial Plants (Tier 2). Project Number: M/304041/01/2, SE/07/051, EBDHP058. Unpublished study prepared by Bayer Cropscience AG. 269 p. |
| 47443247 | Bach, F.; Nguyen, D. (2008) AE 1170437 SC 500 g/L - Effects on the Seedling Emergence and Seedling Growth of Twelve Species of Non-target Terrestrial Plants (Tier 2). Project Number: M/301643/01/2, SE/07/029, EBDHP062. Unpublished study prepared by Bayer Cropscience AG. 276 p. |
| 47443248 | Bach, F.; Gosch, H.; Nguyen, D. (2008) AE 1170437 WP 20 Percent w/w: Effects on the Vegetative Vigour of Ten Species of Non-target Terrestrial Plants (Tier 2). Project Number: M/303620/01/2, VV/07/052, EBDHP059. Unpublished study prepared by Bayer Cropscience AG. 190 p. |
| 47443249 | Bach, F.; Gosch, H.; Nguyen, D. (2008) AE 1170437 SC 500 g/L - Effects on the Vegetative Vigour of Eleven Species of Non-target Terrestrial Plants (Tier 2). Project Number: M/301645/01/2, VV/071030, VV/07/030. Unpublished study prepared by Bayer Cropscience AG. 219 p. |

## 123-2 Aquatic plant growth

| MRID | Citation Reference |
|---|---|
| 47443261 | Banman, C. ; Lam, C. (2008) Toxicity of AE 1170437 Technical to the Green Alga Pseudokirchneriella subcapitata. Project Number: M/293679/02/1, EBDHP022/1. Unpublished study prepared by Bayer CropScience. 50 p. |
| 47443262 | Banman, C. ; Hoffmann, J. ; Lam, C. (2008) Toxicity of the Metabolite BCS-AA10365 (AE 1170437-1-Diaminotriazine) to the Green Alga Pseudokirchneriella subcapitata. Project Number: M/301715/01/1, EBDHP048. Unpublished study prepared by Bayer CropScience. 52 p. |
| 47443264 | Banman, C. ; Hoffmann, J. ; Lam, C. (2008) Toxicity of the Metabolite BCS-AA10202 (AE 1170437-1-Hydroxyethyl) to the Green Alga Pseudokirchneriella subcapitata. Project Number: M/301713/01/1, EBDHP057. Unpublished study prepared by Bayer CropScience. 51 p. |
| 47443265 | Matlock, D.; Hoffmann, J.; Lam, C. (2008) Toxicity of the Metabolite BCS-AA10201 (AE 1170437-1-Olefine) to the Green Alga Pseudokirchneriella subcapitata. Project Number: M/302859/01/1, EBDHP056. Unpublished study prepared by Bayer CropScience. 54 p. |
| 47443266 | Banman, C. S.; Lam, C. V. (2007) Toxicity of AE 1170437 Technical to the Freshwater Diatom Navicula pelliculosa. Project Number: M/291758/01/1, EBDHP024. Unpublished study prepared by Bayer CropScience. 59 p. |

47443267 Banman, C. ; Lam, C. (2007) Toxicity of AE 1170437 Technical to the Saltwater Diatom Skeletonema costatum. Project Number: M/291753/01/1, EBDHP025. Unpublished study prepared by Bayer CropScience. 60 p.

47443268 Banman, C.; Daly, R. ; Lam, C. (2007) Toxicity of AE 1170437 Technical to the Blue Green Algae Anabaena flos-aquae. Project Number: M/294414/01/1, EBDHP023. Unpublished study prepared by Bayer CropScience. 59 p.

## 154-22 Non-Target Plant Studies

| MRID | Citation Reference |
|---|---|
| 47743308 | Dorgeerloh, M. (2008) Lemna gibba G3 - Growth Inhibition Test with AE 1170437 SC 500 Under Static Conditions. Project Number: M/310262/01/2/OCR, EBDHP008, E412/3261/9. Unpublished study prepared by Bayer CropScience. 101 p. |

## 161-1 Hydrolysis

| MRID | Citation Reference |
|---|---|
| 47443207 | Sneikus, J. (2007) [Triazine-2,4-(Carbon 14)] and [indane-3-13/(Carbon 14)]AE 1170437: Hydrolytic Degradation. Project Number: M/294681/01/2, MEF/07/177, M1111669/5. Unpublished study prepared by Bayer CropScience AG. 70 p. |

## 161-2 Photodegradation-water

| MRID | Citation Reference |
|---|---|
| 47443208 | Dehner, D.; Heinemann, O. (2006) [Indane-3-(Carbon 13)/(Carbon 14)] AE 1170437 and [triazine-2,4-(Carbon 14)] AE 1170437: Phototransformation in Water. Project Number: M/283818/01/2, MEF/06/201, M1121572/9. Unpublished study prepared by Bayer CropScience. 99 p. |

## 161-3 Photodegradation-soil

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

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|---|---|
| 47443209 | Stupp, H.; Augustin, T. (2007) [Triazine-2,4-(Carbon 14)] and [indane-3-(Carbon 13)/(Carbon 14)]AE 1170437: Phototransformation on Soil. Project Number: M/295259/01/2, MEF/06/137, M1121506/6. Unpublished study prepared by Bayer CropScience. 111 p. |

## 162-1 Aerobic soil metabolism

| MRID | Citation Reference |
|---|---|
| 47443210 | Shepherd, J. (2008) [Indane-3-(Carbon 13)/(Carbon 14)]AE 1170437: Aerobic Soil Metabolism in Two US Soils. Project Number: M/296489/01/1, MEDHP013. Unpublished study prepared by Bayer CropScience. 177 p. |
| 47443211 | Shepherd, J. (2008) [Triazine-2,4-(Carbon 14)]AE 1170437: Aerobic Soil Metabolism in Two US Soils. Project Number: M/296492/01/1, MEDHP032. Unpublished study prepared by Bayer CropScience. 186 p. |

## 162-2 Anaerobic soil metabolism

| MRID | Citation Reference |
|---|---|
| 47443216 | Stupp, H. (2006) [Triazine-2,4-(Carbon 14)] and [indane-3-(Carbon 13/Carbon 14)]AE 1170437: Anaerobic Soil Metabolism. Project Number: M/283258/01/2, MEF/06/355, M1261526/3. Unpublished study prepared by Bayer CropScience AG. 107 p. |

## 162-3 Anaerobic aquatic metab.

| MRID | Citation Reference |
|---|---|
| 47443218 | Mathew, A. (2007) [Indane-3-(Carbon 13/Carbon 14)]AE 1170437: Anaerobic Aquatic Metabolism. Project Number: M/290001/01/2, MEDHP017. Unpublished study prepared by Bayer CropScience. 64 p. |
| 47443219 | Mathew, A. (2007) [Triazine-2,4-(Carbon 14)]AE 1170437: Anaerobic Aquatic Metabolism. Project Number: M/289074/01/2, MEDHP022. Unpublished study prepared by Bayer CropScience. 64 p. |

## 163-1 Leach/adsorp/desorption

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

| | |
|---|---|
| 47443203 | Stupp, H.; Augustin, T. (2006) [Triazine-2,4-(Carbon 14)] AE 1170437: Adsorption/Desorption on Five Soils. Project Number: M/274409/01/2, MEF/05/383, M1311473/0. Unpublished study prepared by Bayer CropScience. 84 p. |
| 47443204 | Simmonds, M. (2006) [Carbon 14]-AE 1170437-triazine-indanone: Adsorption to and Desorption from Five Soils. Project Number: M/275499/02/2, CX/05/042. Unpublished study prepared by Battelle UK, Ltd. 99 p. |
| 47443205 | Simmonds, M. (2006) [Carbon 14]-AE 1170437-diaminotriazine: Adsorption to and Desorption from Five Soils. Project Number: M/275442/01/2, CX/05/041. Unpublished study prepared by Battelle UK, Ltd. 96 p. |
| 47443206 | Simmonds, M.; Brett, R. (2006) [Carbon 14]-AE 1170437-carboxylic acid: Adsorption to and Desorption from Five Soils. Project Number: M/275561/01/2, CX/05/043. Unpublished study prepared by Battelle UK, Ltd. 97 p. |

## 164-1 Terrestrial field dissipation

| MRID | Citation Reference |
|---|---|
| 47443220 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in California Soil Cropped with Turf, 2006. Project Number: M/303529/01/1, MEDHP014. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Research for Hire. 251 p. |
| 47443221 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in Florida Soil Cropped with Turf, 2006. Project Number: M/303697/01/1, MEDHP035, DH/002/S06/01. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Ag Research Associates. 240 p. |
| 47443222 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in North Carolina Soil Cropped with Turf, 2006. Project Number: M/303532/01/1, MEDHP034, DH/002/506/1. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Agricultural Systems Associates. 246 p. |
| 47443223 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in California Soil, 2006. Project Number: M/303704/01/1, MEDHP038, DH/002/S06/01. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Research for Hire. 251 p. |
| 47443224 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in Florida Soil, 2006. Project Number: M/303702/01/1, MEDHP037, DH/002/S06/01. Unpublished study prepared by Bayer CropScience, Agvise, Inc. and Ag Research Associates. 242 p. |

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|---|---|
| 47443225 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in North Carolina Soil, 2006. Project Number: M/303701/01/1, MEDHP036. Unpublished study prepared by Bayer CropScience, Agvise Inc. and Agricultural Systems Associates. 253 p. |
| 47743301 | Lenz, M. (2009) Terrestrial Field Dissipation of AE 1170437 in Washington Soil, 2006. Project Number: M/345376/01/1/OCR, MEDHP019. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, Inc., and Qualls Ag Laboratory. 264 p. |

## 165-4 Bioaccumulation in fish

| MRID | Citation Reference |
|---|---|
| 47443237 | Matlock, D.; Fischer, D. (2008) [Triazine-2,4-(Carbon 14)] AE 1170437-Bioconcentration and Biotransformation in Bluegill Sunfish (Lepomis macrochirus). Project Number: M/303425/01/1, MEDHP026. Unpublished study prepared by Bayer CropScience. 218 p. |

## 830.1550 Product Identity and composition

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished |

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|---|---|
| | study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.1600 Description of materials used to produce the product

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |

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|---|---|
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |
| 47753301 | Vermehren, J. (2009) Indaziflam (BCS-AA10717): Description of the Manufacturing Process of the Technical Grade Active Substance: Manufactured by Bayer CropScience, Kansas City (USA) or by Bayer CropScience AG, Dormagen (Germany). Project Number: M/345140/01/3, G202048. Unpublished study prepared by Bayer Cropscience Gmbh. 93 p. |

## 830.1620 Description of production process

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
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| | study prepared by Bayer CropScience. 62 p. |
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| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |
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## 830.1650 Description of formulation process

| MRID | Citation Reference |
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| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
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| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
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## 830.1670 Discussion of formation of impurities

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
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| | study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
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| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
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## 830.1700 Preliminary analysis

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
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| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
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## 830.1750 Certified limits

| MRID | Citation Reference |
|---|---|
| 47443201 | Fontaine, L. (2008) Product Chemistry of AA10717 Technical Herbicide. Project Number: M/303832/01/1, BR/2637, ANR/03308. Unpublished study prepared by Bayer CropScience. 701 p. |
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| | CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
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| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
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## 830.1800 Enforcement analytical method

| MRID | Citation Reference |
|---|---|
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| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |

47488901 Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p.

47489001 Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p.

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47489401 Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p.

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47743601 Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p.

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47753308 Doller, U.; Klockner, C. (2009) Analytical Method: Determination of the Sum

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| | of all Stereoisomers of BCS-AA10717 in Technical Grade and Pure Active Substance by High Performance Liquid Chromatography (HPLC). Project Number: M/290214/03/2, AM012606FP3. Unpublished study prepared by Bayer Cropscience Gmbh. 14 p. |
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| 47753311 | Doller, U.; Klockner, C. (2009) First Addendum to the Validation Report AF08/029: Validation of the HPLC-Method AM012506FP3: Determination of the Optical Purity of all Stereoisomers in Technical Grade and Pure BCS-AA10717 by Chiral High Performance Liquid Chromatography (HPLC): Determination of the Specificity of BCS-CN42745. Project Number: M/329686/01/2, AF08/089, AM12506FP3. Unpublished study prepared by Bayer Cropscience Gmbh. 16 p. |
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## 830.6302 Color

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer |

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| | CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.6303 Physical state

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |

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| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
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| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.6304 Odor

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide |

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| | Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
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| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

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

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
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## 830.6314 Oxidizing or reducing action

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.6315 Flammability

| MRID | Citation Reference |
|---|---|
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.6316 Explodability

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.6317 Storage stability of product

| MRID | Citation Reference |
|---|---|
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer |

CropScience. 120 p.

47489101 Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p.

47489301 Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p.

47489401 Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p.

47743501 Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p.

47743601 Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p.

47753313 Doller, U.; Eichelmann, Ch. (2008) Storage Stability and Corrosion Characteristics of BCS-AA10717 Technical Grade Active Substance. Project Number: M/308105/01/2, PA07/039. Unpublished study prepared by Bayer Cropscience Gmbh. 43 p.

## 830.6319 Miscibility

| MRID | Citation Reference |
|---|---|
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.6320 Corrosion characteristics

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |

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|---|---|
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |
| 47753313 | Doller, U.; Eichelmann, Ch. (2008) Storage Stability and Corrosion Characteristics of BCS-AA10717 Technical Grade Active Substance. Project Number: M/308105/01/2, PA07/039. Unpublished study prepared by Bayer Cropscience Gmbh. 43 p. |

## 830.6321 Dielectric breakdown voltage

| MRID | Citation Reference |
|---|---|
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7000 pH of water solutions or suspensions

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. |

| | |
|---|---|
| | Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7050 UV/Visible absorption

| MRID | Citation Reference |
|---|---|
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7100 Viscosity

| MRID | Citation Reference |
|---|---|
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7200 Melting point/melting range

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7220 Boiling point/boiling range

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study |

prepared by Bayer CropScience. 456 p.

## 830.7300 Density/relative density

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47488701 | Huchet, G. (2008) Product Chemistry of AA-10717 2 Percent MUP Herbicide. Project Number: M/302570/01/1, BR/2639. Unpublished study prepared by Bayer CropScience. 65 p. |
| 47488801 | Huchet, G. (2008) Product Chemistry of AA01717 20 percent WP. Project Number: M/302569/01/1, BR/2643. Unpublished study prepared by Bayer CropScience. 120 p. |
| 47488901 | Huchet, G. (2008) Product Chemistry of AA10717 0.0284 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302854/01/1, BR/2642, 102000021294. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489001 | Huchet, G. (2008) Product Chemistry of AA10717 0.0213 Percent Herbicide Plus Turf Fertilizer. Project Number: M/302853/01/1, BR/2641. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489101 | Huchet, G. (2008) Product Chemistry of AA10717 0.0142 percent Herbicide Plus Turf Fertilizer. Project Number: M/302849/01/1, BR/2640. Unpublished study prepared by Bayer CropScience. 62 p. |
| 47489301 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Concentrate/RTS. Project Number: M/302512/01/1, BR/2634, 08FD032. Unpublished study prepared by Bayer CropScience. 155 p. |
| 47489401 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Ready-to-Use. Project Number: M/302509/03/1, BR/2635/R2, 08FD033. Unpublished study prepared by Bayer CropScience. 156 p. |
| 47743501 | Long, D. (2009) Product Chemistry of Indaziflam 200 SC Herbicide. Project Number: M/348332/01/1/OCR, BR/2672, 1907/2006. Unpublished study prepared by Bayer CropScience. 458 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7370 Dissociation constant in water

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

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

| MRID | Citation Reference |
|---|---|
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7560 Partition coefficient (n-octanol/water), generator column method

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7570 Partition coefficient (n-octanol/water), estimation by liquid chromatography

| MRID | Citation Reference |
|---|---|
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7840 Water solubility: Column elution method, shake flask method

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7860 Water solubility, generator column method

| MRID | Citation Reference |
|---|---|
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 830.7950 Vapor pressure

| MRID | Citation Reference |
|---|---|
| 47443202 | Fontaine, L. (2008) Product Chemistry of AA107171 Technical Herbicide. Project Number: M/304175/1/1, PA06/060, PA07/021. Unpublished study prepared by Bayer Corp. 664 p. |
| 47489201 | Huchet, G. (2008) Product Chemistry of Bayer Advanced Lawn 3FL Herbicide Granule. Project Number: M/302511/01/1, BR/2636, 08FD051. Unpublished study prepared by Bayer CropScience. 106 p. |
| 47743601 | Long, D. (2009) Product Chemistry of Indaziflam 500 SC Herbicide. Project Number: M/348333/01/1, BR/2671, AM007205FF1. Unpublished study prepared by Bayer CropScience. 456 p. |

## 835.1240 Soil column leaching

| MRID | Citation Reference |
|---|---|
| 47443203 | Stupp, H.; Augustin, T. (2006) [Triazine-2,4-(Carbon 14)] AE 1170437: Adsorption/Desorption on Five Soils. Project Number: M/274409/01/2, MEF/05/383, M1311473/0. Unpublished study prepared by Bayer CropScience. |

84 p.

47443204 Simmonds, M. (2006) [Carbon 14]-AE 1170437-triazine-indanone: Adsorption to and Desorption from Five Soils. Project Number: M/275499/02/2, CX/05/042. Unpublished study prepared by Battelle UK, Ltd. 99 p.

47443205 Simmonds, M. (2006) [Carbon 14]-AE 1170437-diaminotriazine: Adsorption to and Desorption from Five Soils. Project Number: M/275442/01/2, CX/05/041. Unpublished study prepared by Battelle UK, Ltd. 96 p.

47443206 Simmonds, M.; Brett, R. (2006) [Carbon 14]-AE 1170437-carboxylic acid: Adsorption to and Desorption from Five Soils. Project Number: M/275561/01/2, CX/05/043. Unpublished study prepared by Battelle UK, Ltd. 97 p.

## 835.2120 Hydrolysis of parent and degradates as a function of pH at 25 C

| MRID | Citation Reference |
|---|---|
| 47443207 | Sneikus, J. (2007) [Triazine-2,4-(Carbon 14)] and [indane-3-13/(Carbon 14)]AE 1170437: Hydrolytic Degradation. Project Number: M/294681/01/2, MEF/07/177, M1111669/5. Unpublished study prepared by Bayer CropScience AG. 70 p. |

## 835.2240 Direct photolysis rate of parent and degradates in water

| MRID | Citation Reference |
|---|---|
| 47443208 | Dehner, D.; Heinemann, O. (2006) [Indane-3-(Carbon 13)/(Carbon 14)] AE 1170437 and [triazine-2,4-(Carbon 14)] AE 1170437: Phototransformation in Water. Project Number: M/283818/01/2, MEF/06/201, M1121572/9. Unpublished study prepared by Bayer CropScience. 99 p. |

## 835.2410 Photodegradation of parent and degradates in soil

| MRID | Citation Reference |
|---|---|
| 47443209 | Stupp, H.; Augustin, T. (2007) [Triazine-2,4-(Carbon 14)] and [indane-3-(Carbon 13)/(Carbon 14)]AE 1170437: Phototransformation on Soil. Project Number: M/295259/01/2, MEF/06/137, M1121506/6. Unpublished study prepared by Bayer CropScience. 111 p. |

## 835.4100 Aerobic soil metabolism

| MRID | Citation Reference |
|---|---|
| 47443210 | Shepherd, J. (2008) [Indane-3-(Carbon 13)/(Carbon 14)]AE 1170437: Aerobic Soil Metabolism in Two US Soils. Project Number: M/296489/01/1, MEDHP013. Unpublished study prepared by Bayer CropScience. 177 p. |
| 47443211 | Shepherd, J. (2008) [Triazine-2,4-(Carbon 14)]AE 1170437: Aerobic Soil Metabolism in Two US Soils. Project Number: M/296492/01/1, MEDHP032. Unpublished study prepared by Bayer CropScience. 186 p. |
| 47443212 | Stupp, H.; Augustin, T. (2007) [Indane-3-(Carbon 13/14)] AE 1170437: Aerobic Soil Metabolism in Four EU Soils. Project Number: M/295160/01/2, MEF/06/19, M1251497/9. Unpublished study prepared by Bayer CropScience AG. 98 p. |
| 47443213 | Stupp, H.; Augustin, T. (2007) [Triazine-2,4-(Carbon 14)]AE 1170437: Aerobic Soil Metabolism in Four EU Soils. Project Number: M/290409/01/2, MEF/06/299, M1251406/9. Unpublished study prepared by Bayer CropScience. 108 p. |
| 47443214 | Sneikus, J. (2008) [Triazine-2,4-(Carbon 14)]AE 1956114 (diaminotriazine): Aerobic Soil Metabolism in Three EU Soils. Project Number: M/297565/01/2, MEF/05/517, M1251511/6. Unpublished study prepared by Bayer CropScience. 80 p. |
| 47443215 | Heinemann, O. (2008) AE 1170437 and AE 1170438: Comparative Aerobic Soil Degradation in Two EU Soils. Project Number: M/299297/01/2, MEF/08/004, M1251704/0. Unpublished study prepared by Bayer CropScience. 78 p. |

## 835.4200 Anaerobic soil metabolism

| MRID | Citation Reference |
|---|---|
| 47443216 | Stupp, H. (2006) [Triazine-2,4-(Carbon 14)] and [indane-3-(Carbon 13/Carbon 14)]AE 1170437: Anaerobic Soil Metabolism. Project Number: M/283258/01/2, MEF/06/355, M1261526/3. Unpublished study prepared by Bayer CropScience AG. 107 p. |

## 835.4300 Aerobic aquatic metabolism

| MRID | Citation Reference |
|---|---|
| 47443217 | Stupp, H. (2007) [Triazine-2,4-(Carbon 14)] and [indane-3-Carbon 13/14)]AE |

1170437: Aerobic Aquatic Metabolism. Project Number: M/296164/01/2, MEF/07/283, M1511579/9. Unpublished study prepared by Bayer CropScience AG. 131 p.

## 835.4400 Anaerobic aquatic metabolism

| MRID | Citation Reference |
|---|---|
| 47443218 | Mathew, A. (2007) [Indane-3-(Carbon 13/Carbon 14)]AE 1170437: Anaerobic Aquatic Metabolism. Project Number: M/290001/01/2, MEDHP017. Unpublished study prepared by Bayer CropScience. 64 p. |
| 47443219 | Mathew, A. (2007) [Triazine-2,4-(Carbon 14)]AE 1170437: Anaerobic Aquatic Metabolism. Project Number: M/289074/01/2, MEDHP022. Unpublished study prepared by Bayer CropScience. 64 p. |

## 835.6100 Terrestrial field dissipation

| MRID | Citation Reference |
|---|---|
| 47443220 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in California Soil Cropped with Turf, 2006. Project Number: M/303529/01/1, MEDHP014. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Research for Hire. 251 p. |
| 47443221 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in Florida Soil Cropped with Turf, 2006. Project Number: M/303697/01/1, MEDHP035, DH/002/S06/01. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Ag Research Associates. 240 p. |
| 47443222 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in North Carolina Soil Cropped with Turf, 2006. Project Number: M/303532/01/1, MEDHP034, DH/002/506/1. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Agricultural Systems Associates. 246 p. |
| 47443223 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in California Soil, 2006. Project Number: M/303704/01/1, MEDHP038, DH/002/S06/01. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, and Research for Hire. 251 p. |
| 47443224 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in Florida Soil, 2006. Project Number: M/303702/01/1, MEDHP037, DH/002/S06/01. Unpublished study prepared by Bayer CropScience, Agvise, Inc. and Ag Research Associates. 242 p. |

| | |
|---|---|
| 47443225 | Lenz, M. (2008) Terrestrial Field Dissipation of AE 1170437 in North Carolina Soil, 2006. Project Number: M/303701/01/1, MEDHP036. Unpublished study prepared by Bayer CropScience, Agvise Inc. and Agricultural Systems Associates. 253 p. |
| 47743302 | Lenz, M. (2009) Terrestrial Field Dissipation of AE 1170437 in New York Soil, 2006. Project Number: M/346142/01/1/OCR, MEDHP033. Unpublished study prepared by Bayer CropScience, Agvise Laboratories, Inc., and A.C.D.S. Research, Inc. 268 p. |

## 850.1010 Aquatic invertebrate acute toxicity, test, freshwater daphnids

| MRID | Citation Reference |
|---|---|
| 47443226 | Banman, C.; Hoffmann, J.; Lam, C. (2006) Acute Toxicity of AE 1170437 Technical to the Daphnia magna under Static Conditions. Project Number: M/282376/01/2, EBDHP021. Unpublished study prepared by Bayer CropScience. 38 p. |
| 47743303 | Banman, C.; Hoffmann, J.; Lam, C. (2008) Acute Toxicity of AE 1170437 SC500 to Daphnia magna Under Static Conditions. Project Number: M/303022/01/1/OCR, EBDHP006. Unpublished study prepared by Bayer CropScience. 42 p. |
| 47743304 | Bruns, E. (2009) Acute Toxicity of BCS-AA10717 SC 200 G to the Water Flea Daphnia magna in a Static Laboratory Test System. Project Number: M/345722/01/2/OCR, EBDHP112, E/320/3615/0. Unpublished study prepared by Bayer CropScience. 57 p. |

## 850.1025 Oyster acute toxicity test (shell deposition)

| MRID | Citation Reference |
|---|---|
| 47443228 | Gallagher, S.; Kendall, T.; Krueger, H. (2008) AE 1170437: A 96-hour Shell Deposition Test with the Eastern Oyster (Crassostrea virginica). Project Number: M/300719/01/1, EBDHP027, 149A/232A. Unpublished study prepared by Wildlife International, Ltd. 62 p. |

## 850.1035 Mysid acute toxicity test

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

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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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| MRID | Citation Reference |
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## 860.1480 Meat/milk/poultry/eggs

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| 47743404 | Brungardt, J.; Krolski, M. (2009) AE 1170437 500 SC - Magnitude of the Residue in/on Tree Nuts (CG 14). Project Number: M/347601/01/1, RADHP028, M/344601/01/1/OCR. Unpublished study prepared by Bayer CropScience. 197 p. |
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## 860.1520 Processed food/feed

| MRID | Citation Reference |
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## 860.1550 Proposed tolerances

| MRID | Citation Reference |
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## 860.1850 Confined accumulation in rotational crops

| MRID | Citation Reference |
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## 870.1100 Acute oral toxicity

| MRID | Citation Reference |
|---|---|
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| 47443281 | Schuengel, M. (2007) AE 1170437 - Acute Toxicity in the Rat after Oral Administration. Project Number: M/294505/01/2, AT04235, T/1078231. Unpublished study prepared by Bayer HealthCare AG. 30 p. |
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| 47488802 | Schuengel, M. (2007) AE 1170437 WP 20 - Acute Toxicity in the Rat after Oral Administration. Project Number: M/289026/01/2, AT03848, T/2077828. Unpublished study prepared by Bayer HealthCare AG. 29 p. |
| 47489202 | Moore, G. (2008) Acute Oral Toxicity Up and Down Procedure in Rats - 3FL Herbicide Granule. Project Number: M/303511/01/1, 24410, P320/UDP. Unpublished study prepared by Product Safety Laboratories. 15 p. |
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| 47743602 | Schungel, M. (2007) AE 1170437 SC 500 (Spec No 102000014236) - Acute Toxicity in the Rat After Oral Administration. Project Number: M/294230/01/2, AT04069, T6077903. Unpublished study prepared by Bayer HealthCare AG. 30 p. |
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## 870.1200 Acute dermal toxicity

| MRID | Citation Reference |
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## 870.1300 Acute inhalation toxicity

| MRID | Citation Reference |
|---|---|
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| 47488704 | Durando, J. (2008) Acute Inhalation Toxicity Study in Rats - Limit Test - AA 10717 5 Percent MUP. Project Number: M/304196/01/1, 24049, P330. Unpublished study prepared by Product Safety Laboratories. 23 p. |
| 47488804 | Pauluhn, J. (2007) AE 1170437 WP 20 (Spec No 102000014590) - Acute Inhalation Toxicity in Rats. Project Number: M/290110/01/2, AT03916, T6077499. Unpublished study prepared by Bayer HealthCare AG. 78 p. |
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| 47743502 | Sargent, D. (2009) Acute Toxicity of BCS-AA10717 200SC Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/347080/01/1/OCR, BCS050409. Unpublished study prepared by Bayer CropScience. 10 p. |
| 47743604 | Folkerts, A. (2007) AE 1170437 SC 500 (Spec No 102000014236) - Activity ID TXDHP052 - Acute Inhalation Toxicity in Rats. Project Number: M/294261/01/2, AT04055, T3077504. Unpublished study prepared by Bayer HealthCare AG. 78 p. |
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## 870.2400 Acute eye irritation

| MRID | Citation Reference |
|---|---|
| 47443284 | Schuengel, M. (2006) AE 1170437 - Acute Eye Irritation on Rabbits. Project Number: M/275763/01/2, AT03200, T/1076558. Unpublished study prepared by Bayer HealthCare AG. 23 p. |
| 47488705 | Durando, J. (2008) Primary Eye Irritation Study in Rabbits - AA 10717 5 Percent MUP. Project Number: M/304197/01/1, 24050, P324. Unpublished study prepared by Product Safety Laboratories. 18 p. |
| 47488805 | Gmelin, C. (2007) AE 1170437 WP 20 (Spec No 102000014590) 1st Amendment to AT03838 - Acute Eye Irritation on Rabbits. Project Number: M/289351/02/1, AT03838/A, T/0077565. Unpublished study prepared by Bayer HealthCare AG. 32 p. |
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| | Granule. Project Number: M/303516/01/1, 24413, P324. Unpublished study prepared by Product Safety Laboratories. 16 p. |
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| 47743605 | Gmelin, C. (2007) AE 1170437 SC 500 (Spec No 102000014236) - Acute Eye Irritation on Rabbits. Project Number: M/292520/01/2, AT04083, T/1077584. Unpublished study prepared by Bayer HealthCare AG. 25 p. |
| 47753314 | Sargent, D. (2009) Indaziflam (BCS-AA 10717): Toxicity Data in Support of the Technical Grade Active Ingredient (TGAI). Project Number: BES/052909, M/348331/01/1. Unpublished study prepared by Bayer CropScience LP. 7 p. |

## 870.2500 Acute dermal irritation

| MRID | Citation Reference |
|---|---|
| 47443285 | Schuengel, M. (2006) AE 1170437 - Acute Skin irritation/Corrosion on Rabbits. Project Number: M/275741/01/2, AT03201, T/0976556. Unpublished study prepared by Bayer HealthCare AG. 23 p. |
| 47488706 | Durando, J. (2008) Primary Skin Irritation Study in Rabbits - AA 10717 5 Percent MUP. Project Number: M/304200/01/1, 24051, P326. Unpublished study prepared by Product Safety Laboratories. 16 p. |
| 47488806 | Gmelin, C. (2007) AE 1170437 WP 20 (Spec No 102000014590) - Acute Skin Irritation/Corrosion on Rabbits. Project Number: M/289350/01/2, AT03837, T/9077564. Unpublished study prepared by Bayer HealthCare AG. 25 p. |
| 47489206 | Moore, G. (2008) Primary Skin Irritation Study in Rabbits - 3FL Herbicide Granule. Project Number: M/303519/01/1, 24414, P326. Unpublished study prepared by Product Safety Laboratories. 16 p. |
| 47489306 | Moore, G. (2008) Primary Skin Irritation Study in Rabbits - Bayer Advanced Lawn 3FL Herbicide Concentrate. Project Number: M/304189/01/1, 24438, P326. Unpublished study prepared by Product Safety Laboratories. 16 p. |
| 47743502 | Sargent, D. (2009) Acute Toxicity of BCS-AA10717 200SC Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/347080/01/1/OCR, BCS050409. Unpublished study prepared by Bayer CropScience. 10 p. |

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| 47743606 | Gmelin, C. (2007) AE 1170437 SC 500 (Spec No 102000014236) - Acute Skin Irritation/Corrosion on Rabbits. Project Number: M/292515/01/2, AT04082, T/9077582. Unpublished study prepared by Bayer HealthCare AG. 25 p. |
| 47753314 | Sargent, D. (2009) Indaziflam (BCS-AA 10717): Toxicity Data in Support of the Technical Grade Active Ingredient (TGAI). Project Number: BES/052909, M/348331/01/1. Unpublished study prepared by Bayer CropScience LP. 7 p. |

## 870.2600 Skin sensitization

| MRID | Citation Reference |
|---|---|
| 47443286 | Repetto-Larsay, M. (2006) AE 1170437 - Evaluation of Potential Dermal Sensitization in the Local Lymph Node Assay in the Mouse. Project Number: M/273140/01/2, SA/06098, AE/1170437. Unpublished study prepared by Bayer Cropscience. 41 p. |
| 47488707 | Durando, J. (2008) Dermal Sensitization Study in Guinea Pig (Buehler Method) - AA 10717 5 Percent MUP. Project Number: M/304203/01/1, 24052, P328. Unpublished study prepared by Product Safety Laboratories. 25 p. |
| 47488807 | Repetto-Larsay, M. (2007) AE 1170437 WP 20 (Spec No 102000014590) - Evaluation of Potential Dermal Sensitization in the Local Lymph Node Assay in the Mouse. Project Number: M/289453/01/2, SA/07074. Unpublished study prepared by Bayer Cropscience. 38 p. |
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| 47489307 | Durando, J. (2008) Dermal Sensitization Study in Guinea Pigs (Buehler Method) - Bayer Advanced Lawn 3FL Herbicide Concentrate. Project Number: M/304190/01/1, 24439, P328. Unpublished study prepared by Product Safety Laboratories. 23 p. |
| 47743502 | Sargent, D. (2009) Acute Toxicity of BCS-AA10717 200SC Herbicide: New Formulation Registration and Precautionary Label Language Based on Extrapolated Data. Project Number: M/347080/01/1/OCR, BCS050409. Unpublished study prepared by Bayer CropScience. 10 p. |
| 47743607 | Vohr, W. (2009) BCS-AA10717 SC 500 (Project: BCS-AA10717) - Study For the Skin Sensitization Effect in Guinea Pigs (Buehler Patch Test). Project Number: M/344749/01/2, AT05177, TXDHP107. Unpublished study prepared by Bayer Ag Inst. of Toxicology. 30 p. |

## 870.3100 90-Day oral toxicity in rodents

| MRID | Citation Reference |
|---|---|
| 47443287 | McElligott, A. (2005) AE 1170437 - 90-Day Toxicity Study in the Rat by Dietary Administration. Project Number: M/250576/01/3, SA/04093. Unpublished study prepared by Bayer Cropscience. 693 p. |
| 47443288 | McElligott, A. (2005) AE 1170437 - 90-Day Toxicity Study in the Mouse by Dietary Administration. Project Number: M/246281/01/3, SA/04094. Unpublished study prepared by Bayer Cropscience. 317 p. |

## 870.3150 90-day oral toxicity in nonrodents

| MRID | Citation Reference |
|---|---|
| 47443289 | Eigenberg, D. (2008) A 90-Day Toxicity Study in the Beagle Dog with Technical Grade BCS-AA10717 Administered by Oral Gavage. Project Number: M/303436/01/1, 201630, 06/S16/DL. Unpublished study prepared by Bayer CropScience LP. 582 p. |

## 870.3200 21/28-day dermal toxicity

| MRID | Citation Reference |
|---|---|
| 47443290 | Schladt, L. (2006) AE 1170437 - (Project AE 1170437) - Subacute Toxicity Study in Wistar Rats (4 Weeks Dermal Administration). Project Number: M/278706/01/3, AT03278, T3076802. Unpublished study prepared by Bayer HealthCare AG. 268 p. |

## 870.3700 Prenatal developmental toxicity study

| MRID | Citation Reference |
|---|---|
| 47443291 | Wason, S. (2006) AE 1170437 - Developmenal Toxicity Study in the Rat by Gavage. Project Number: M/279583/01/2, SA06012. Unpublished study prepared by Bayer Cropscience. 219 p. |
| 47443292 | Wason, S. (2008) BCS-AA10717 - Study Type: Prenatal Developmental Toxicity Study - Rabbit. Project Number: M/297239/01/2, SA/07017. Unpublished study prepared by Bayer Cropscience. 284 p. |

## 870.3800 Reproduction and fertility effects

| MRID | Citation Reference |
|---|---|
| 47443293 | Milius, A. ; Stuart, B. (2008) Technical Grade BCS-AA10717: A Two Generation Reproductive Toxicity Study in the Wistar Rat. Project Number: M/303771/01/1, 201833, 07/R72/IH. Unpublished study prepared by Bayer CropScience LP. 1745 p. |

## 870.4100 Chronic toxicity

| MRID | Citation Reference |
|---|---|
| 47443294 | Eigenberg, D. (2008) A One Year Toxicity Feeding Study in the Beagle Dog with Technical Grade BCS-AA10717. Project Number: M/303526/01/1, 201740, 06/C76/FY. Unpublished study prepared by Bayer CropScience LP. 973 p. |
| 47443295 | Jensen, T. (2007) A Homogeneity and Stability Study of AE 1170437 Technical in Canine Ration. Project Number: M/293734/01/1, 201738, 06/H76/GO. Unpublished study prepared by Bayer CropScience LP. 24 p. |

## 870.4200 Carcinogenicity

| MRID | Citation Reference |
|---|---|
| 47743416 | Kennel, P. (2008) BCS AA10717 - Carcinogenicity Study in the C57BL/6J Mouse by Dietary Administration. Project Number: M/312600/01/2, SA/05252, M/312600/01/2/OCR. Unpublished study prepared by Bayer Cropscience. 2051 p. |

## 870.4300 Combined chronic toxicity/carcinogenicity

| MRID | Citation Reference |
|---|---|
| 47443296 | Langrand-Lerche, C. (2007) AE 1170437 - Chronic Toxicity and Carcinogenicity Study of AE 1170437 in the Wistar Rat by Dietary Administration (12-Month Interim Report). Project Number: M/295231/01/2, SA/05251, LYNX/PSI/N/TXDHP004. Unpublished study prepared by Bayer Cropscience. 880 p. |

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| 47743417 | Langrand-Lerche, C. (2009) Chronic Toxicity and Carcinogenicity Study of BCS-AA10717 in the Wistar Rat by Dietary Administration. Project Number: M/295231/02/2, SA/05251, M/295231/02/2/OCR. Unpublished study prepared by Bayer Cropscience. 3949 p. |

## 870.5100 Bacterial reverse mutation test

| MRID | Citation Reference |
|---|---|
| 47443297 | Herbold, B. (2006) AE 1170437 Technical - (Project: AE 1170437) - Salmonella/Microsome Test Plate Incorporation and Preincubation Method. Project Number: M/278724/01/2, AT03273, T/3076145. Unpublished study prepared by Bayer HealthCare AG. 62 p. |
| 47443298 | Herbold, B. (2007) 6-(1-Fluorophenyl)-1,3,5-Triazin-2,4-Diamine (Tested as BCS-AA10365) (Project: AE1170437) - Salmonella/Microsome test - Plate Incorporation and Preincubation Method. Project Number: M/290157/01/2, AT03908, T/2077198. Unpublished study prepared by Bayer HealthCare AG. 64 p. |
| 47443301 | Herbold, B. (2008) AE 1170437 - Salmonella/Microsome Test - Plate Incorporation and Preincubation Method: TXDHP077. Project Number: M/301458/01/2, AT04336. Unpublished study prepared by Bayer HealthCare AG. 65 p. |
| 47753314 | Sargent, D. (2009) Indaziflam (BCS-AA 10717): Toxicity Data in Support of the Technical Grade Active Ingredient (TGAI). Project Number: BES/052909, M/348331/01/1. Unpublished study prepared by Bayer CropScience LP. 7 p. |

## 870.5300 In vitro mammalian cell gene mutation test

| MRID | Citation Reference |
|---|---|
| 47443302 | Herbold, B. (2007) AE 1170437 Technical - V79/HPRT- Test in vitro for the Detection of Induced Forward Mutations. Project Number: M/278721/01/2, AT03274. Unpublished study prepared by Bayer HealthCare AG. 42 p. |
| 47443303 | Entian, G. (2007) 6-(1-fluoroethyl)-1,3,5-triazine-2,4-diamine (Tested as BCS-AA10365) (Project: AE 1170437) - V79/HPRT Test in vitro for the Detection of Induced Forward Mutations. Project Number: M/294379/01/2, AT04097. Unpublished study prepared by Bayer HealthCare AG. 44 p. |
| 47443304 | Entian, G. (2008) AE 1170437-Carboxylic acid (Project: AE 1170437) V79/HPRT-Test in vitro for the Detection of Induced Forward Mutations. Project Number: M/300941/01/2, AT04536. Unpublished study prepared by |

Bayer HealthCare AG. 45 p.

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## 870.5375 In vitro mammalian chromosome aberration test

| MRID | Citation Reference |
|---|---|
| 47443305 | Nern, M. (2007) AE 1170437 (Tested as AE 1170437 Technical) (Project: AE 1170437) - In vitro Chromosome Aberration Test with Chinese Hamster V79 Cells. Project Number: M/279463/01/2, AT03323. Unpublished study prepared by Bayer HealthCare AG. 58 p. |
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| 47443307 | D'Acquisto, M. (2008) AE 1170437-carboxylic acid - In vitro Chromosome Aberration Test with Chinese Hamster V79 Cells. Project Number: M/301573/01/2, AT04343. Unpublished study prepared by Bayer HealthCare AG. 55 p. |
| 47753314 | Sargent, D. (2009) Indaziflam (BCS-AA 10717): Toxicity Data in Support of the Technical Grade Active Ingredient (TGAI). Project Number: BES/052909, M/348331/01/1. Unpublished study prepared by Bayer CropScience LP. 7 p. |

## 870.5395 Mammalian erythrocyte micronucleus test

| MRID | Citation Reference |
|---|---|
| 47443308 | Herbold, B. (2007) AE 1170437 Technical (Project: AE 1170437) - Micronucleus-Test on the Male Mouse. Project Number: M/277278/01/2, AT03227. Unpublished study prepared by Bayer HealthCare AG. 57 p. |
| 47753314 | Sargent, D. (2009) Indaziflam (BCS-AA 10717): Toxicity Data in Support of the Technical Grade Active Ingredient (TGAI). Project Number: BES/052909, M/348331/01/1. Unpublished study prepared by Bayer CropScience LP. 7 p. |

## 870.6200 Neurotoxicity screening battery

| MRID | Citation Reference |
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| 47443309 | Gilmore, R. ; Hoss, H. (2008) A Subchronic Neurotoxicity Screening Study with Technical Grade BCS-AA10717 in Wistar Rats. Project Number: M/297947/01/1, 201749, 06/N72/GK. Unpublished study prepared by Bayer CropScience. 600 p. |
| 47443310 | Gilmore, R.; Hoss, H. (2008) An Acute Oral Neurotoxicity Screening Study with Technical Grade BCS-AA10717 in Wistar Rats. Project Number: M/301098/01/1, 201782, 07/N12/JX. Unpublished study prepared by Bayer CropScience. 565 p. |

## 870.6300 Developmental neurotoxicity study

| MRID | Citation Reference |
|---|---|
| 47443311 | Sheets, L.; Gilmore, R. ; Hoss, H. (2008) A Developmental Neurotoxicity Study with Technical Grade BCS-AA10717 in Wistar Rats. Project Number: M/303709/01/1, 201877, 07/D72/KC. Unpublished study prepared by Bayer CropScience. 1139 p. |

## 870.7485 Metabolism and pharmacokinetics

| MRID | Citation Reference |
|---|---|
| 47443312 | Krolski, M. ; Nguyen, T. (2008) Metabolism of [14 Carbon] AE 1170437 in Rats. Project Number: M/303441/01/1, MEDHP016. Unpublished study prepared by Bayer CropScience. 159 p. |
| 47743418 | Krolski, M.; Nguyen, T. (2009) Metabolism of [Carbon 14] AE 1170437 in Rats (Additional Groups). Project Number: M/345676/01/1, MEDHP023, M/345676/01/1/OCR. Unpublished study prepared by Bayer CropScience. 171 p. |

## 870.7600 Dermal penetration

| MRID | Citation Reference |
|---|---|
| 47743419 | Rascle, J. (2007) AE 1170437 - Comparative in vitro Dermal Absorption Study Using Human and Rat Skin. Project Number: M/295685/01/2, SA/07078, M/295685/01/2/OCR. Unpublished study prepared by Bayer Cropscience. 127 p. |

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| 47743420 | Blanck, M. (2008) BCS-AA10717 SC 500 - in vivo Dermal Absorption Study in the Male Rat. Project Number: M/303747/01/2, SA/08041, LYNX/PSI/NTXDHP043. Unpublished study prepared by Bayer Cropscience. 176 p. |
| 47743426 | Young, B. (2009) Occupational Exposure and Risk Assessment for Indaziflam (BCS-AA10717) from Use on Pome Fruits, Stone Fruits, Tree Nuts, and Grapes in Canada. Project Number: M/348957/01/1, G202063, M/348957/01/1/OCR. Unpublished study prepared by Bayer CropScience. 15 p. |

## 870.7800 Immunotoxicity

| MRID | Citation Reference |
|---|---|
| 47443313 | Reissmueller, E.; Vohr, H. (2008) BCS-AA107017 - Subacute Oral Immunotoxicity Study in Wistar Rats (4 weeks Administration by Diet). Project Number: M/302132/01/2, AT04595, T7078589. Unpublished study prepared by Bayer HealthCare AG. 111 p. |

## 875.1200 Dermal exposure--Indoor

| MRID | Citation Reference |
|---|---|
| 47743425 | Young, B. (2009) Occupational Exposure and Risk Assessment for Indaziflam (BCS-AA10717) from Use on Fruit Trees, Tree Nuts, Vines and Industrial Vegetation Management in the United States. Project Number: M/348956/01/1, G202062, M/348956/01/1/OCR. Unpublished study prepared by Bayer CropScience. 21 p. |

## 875.1300 Inhalation exposure--outdoor

| MRID | Citation Reference |
|---|---|
| 47743425 | Young, B. (2009) Occupational Exposure and Risk Assessment for Indaziflam (BCS-AA10717) from Use on Fruit Trees, Tree Nuts, Vines and Industrial Vegetation Management in the United States. Project Number: M/348956/01/1, G202062, M/348956/01/1/OCR. Unpublished study prepared by Bayer CropScience. 21 p. |

## 875.1400 Inhalation exposure--indoor

| MRID | Citation Reference |
|---|---|
| 47743425 | Young, B. (2009) Occupational Exposure and Risk Assessment for Indaziflam (BCS-AA10717) from Use on Fruit Trees, Tree Nuts, Vines and Industrial Vegetation Management in the United States. Project Number: M/348956/01/1, G202062, M/348956/01/1/OCR. Unpublished study prepared by Bayer CropScience. 21 p. |

## 850.1735 Whole sediment: acute freshwater invertebrates

| MRID | Citation Reference |
|---|---|
| 47443238 | Putt, A. (2008) AE1170437 - Toxicity to Midge (Chironomus tentans) During a 10-day Sediment Exposure. Project Number: M/302577/01/1, EBDHP067, 13798/6208. Unpublished study prepared by Springborn Smithers Laboratories. 69 p. |

## 850.1740 Whole sediment: acute marine invertebrates

| MRID | Citation Reference |
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