

## **APPENDIX B. Data Supporting Guideline Requirements for the Reregistration of Atrazine**

### **GUIDE TO APPENDIX B**

Appendix B contains listing of data requirements which support the reregistration for active ingredients within the case atrazine covered by this IRED. It contains generic data requirements that apply to atrazine in all products, including data requirements for which a "typical formulation" is the test substance.

The data table is organized in the following formats:

1. Data Requirement (Column 1). The data requirements are listed by Guideline Number. The Guideline Numbers accompanying each test refer to the test protocols set in the Pesticide Assessment Guidance available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4650.
2. Use Pattern (Column 2). This column indicates the use patterns for which the data requirements apply. The following letter designations are used for the given use patterns.

A.	Terrestrial Food	H.	Greenhouse Food
B.	Terrestrial Feed	I.	Greenhouse Non-Food
C.	Terrestrial Non-Food	J.	Forestry
D.	Aquatic Food	K.	Residential
E.	Aquatic Non-Food Outdoor	L.	Indoor Food
F.	Aquatic Non-Food Industrial	M.	Indoor Non-Food
G.	Aquatic Non-Food Residential	N.	Indoor Medical
		O.	Indoor Residential

3. Bibliographic Citation (Column 3). If the Agency has acceptable data in its files, this column list the identify number of each study. This normally is the Master Record Identification (MRID) number, but may be a "GS" number if no MRID number has been assigned. Refer to the Bibliography appendix for a complete citation of the study.

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DATA REQUIREMENT				CITATION(S)
New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
<b><u>PRODUCT CHEMISTRY</u></b>				
830.1550	61-1	Product Identity and Composition	All	40566501, 43188901, 43505801
830.1600 830.1620 830.1650	61-2A	Starting Materials and Manufacturing Process	All	40566501
830.1670	61-2B	Formation of Impurities	All	00142160, 42043501, 43188901
830.1700	62-1	Preliminary Analysis	All	00142160, 00164821, 42043501, 42211401, 42873701, 42925201, 44488801
830.1750	62-2	Certification of Limits	All	40566501, 42925201, 43188901
830.1800	62-3	Analytical Method	All	00142160, 00164821, 42873701
830.6302	63-2	Color	All	00142160
830.6303	63-3	Physical State	All	00142160
830.6304	63-4	Odor	All	00142160
830.7050	None	UV/Visible Absorption	All	<b>data gap</b>
830.7200	63-5	Melting Point	All	00142160, 00164822
830.7220	63-6	Boiling Point	All	not applicable
830.7300	63-7	Density	All	00023548, 43016501, 43188902
830.7840 830.7860	63-8	Solubility	All	00023497, 43337901

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
830.7950	63-9	Vapor Pressure	All	00142160, 00164822
830.7370	63-10	Dissociation Constant in Water	All	00022855
830.7550 830.7560 830.7570	63-11	Partition Coefficient (Octanol/Water)	All	00142160, 00164822, 43337901
830.7000	63-12	pH	All	00142160, 43337901
830.6313	63-13	Stability	All	00023497, 00023548, 00023963, 43337901, 43796001
830.6314	63-14	Oxidizing/Reducing Action	All	43016501, 43188902
830.6315	63-15	Flammability	All	not applicable
830.6316	63-16	Explosibility	All	43016501, 43188902
830.6317	63-17	Storage Stability	All	0023548, 43395501
830.7100	63-18	Viscosity	All	not applicable
830.6319	63-19	Miscibility	All	not applicable
830.6320	63-20	Corrosion Characteristics	All	00142160, 43016501, 43188902
ECOLOGICAL EFFECTS				
850.2100	71-1	Avian Acute Oral Toxicity Test	ABCJK	00024721 (parent) <b>data gap (3 major degradates)</b>
850.2200	71-2	Avian Dietary Toxicity	ABCJK	00022923
850.2300	71-4	Avian Reproduction	ABCJK	42547102, 42547101

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
850.1075	72-1 (a & b)	Fish Acute Toxicity - Freshwater	ABCJK	00024717, 00024716 (parent) <b>data gap (major degradate)</b>
850.1010	72-2	Acute Aquatic Invertebrate Toxicity	ABCJK	00024377 (parent) <b>data gap (major degradate)</b>
850.1075	72-3a	Acute Estuarine/Marine Toxicity - Fish	ABCJK	43344901 (parent), <b>data gap (major degradate)</b>
850.1025 850.1035 850.1045 850.1055	72-3b	Acute Estuarine/Marine Toxicity - Invertebrate (Mollusk)	ABCJK	<b>data gap (parent and major degradate)</b>
	72-3c	Estuarine/Marine Toxicity - Invertebrate (Shrimp)	ABCJK	43344902 (parent) <b>data gap (major degradate)</b>
850.1400	72-4a	Early Life-Stage Fish (Freshwater)	ABCJK	45208304
	72-4a	Early Life-Stage Fish (Marine)	ABCJK	<b>data gap</b> 45202920 (upgradable)
850.1300	72-4b	Life-Cycle Aquatic Invertebrate	ABCJK	00024377
850.1350	72-4b	Life-Cycle Marine Invertebrate	ABCJK	45202920
850.1500	72-5	Life-Cycle Fish	ABCJK	00024377
850.4225 850.4230	123-1a	Seedling Germination/Seedling Emergence	ABCJK	42041403
850.4250	1231b	Vegetative Vigor	ABCJK	42041402
850.4400	123-2	Aquatic Plant Growth	ABCJK	41065203a & b 43074801, 43074802, 43074803

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
850.3020	141-1	Nontarget Insect Acute Contact Toxicity (Honey Bee)	ABCJK	00036935
<b><u>TOXICOLOGY</u> - Parent Atrazine</b>				
870.1100	81-1	Acute Oral - Rat	All	00024706, 00027097 Accession No. 230303
870.1200	81-2	Acute Dermal - Rabbit	All	00024708, 00027097 Accession Nos. 230303; 231466
870.1300	81-3	Acute Inhalation - Rat	All	42089901, 43016502
870.2400	81-4	Primary Eye Irritation - Rabbit	All	Accession No. 230303 00024709
870.2500	81-5	Primary Dermal Irritation - Rabbit	All	Accession No. 230303 00024709, 00024710
870.2600	81-6	Dermal Sensitization	All	00105131
870.3100	82-1	90-Day Feeding	All	44723701
870.3200	82-2	21-Day Dermal Toxicity - Rat	All	42089902
870.3465	82-4	Subchronic Inhalation Toxicity - 28 Day	All	<b>Data Gap</b>
870.3700	83-3	Developmental Toxicity	All	41065201, 00143008, 40566302 Accession No. 254979 00143006, 40566301
870.3800	83-4	Reproduction and Fertility Effects - 2 Generation Repro	All	40431303, 42743903
870.4100 870.4300	83-1A 83-5	Chronic Feeding Toxicity - Rodent Combined Chronic Toxicity/Carcinogenicity	All	40629302, 42227001, 43934402, 00158930, 43532001

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
870.4100	83-1B	Chronic Feeding Toxicity - Non-Rodent (dog)	All	40431301
870.4200	83-2A	Oncogenicity - Rat	All	40629302, 42227001, 42204401, 43934402, 00158930
870.4200	83-2B	Oncogenicity - Mouse	All	40431302
non-guideline	non-guideline	Special Studies - Neurotoxicity	All	44152102, 43934406, 45166902, 45166901
870.5100	84-2	Bacterial Reverse Mutation Assay	All	00060642, 40246601
870.5385	84-2	Micronucleus Assay	All	40722301
870.5450	84-2	Rodent Dominant Lethal Assay	All	42637003
870.5550	84-2	UDS Assay	All	00161790, 40722301, 42547105
870.7485	85-1	General Metabolism	All	40431304, 40431305, 40431306, 42165503, 44713802, 40437501
870.7600	85-2	Dermal Absorption	All	43314302 (rat) 44152114 (human)
non-guideline	non-guideline	Special Studies - Assays of Direct Estrogenic Activity of Triazines	All	43598617, 43598618, 43598619, 43934403
non-guideline	non-guideline	Special Study - Estrous Cycle Alterations and LH Surge Attenuation - Method Validation	All	43934405
non-guideline	non-guideline	Special Study - Estrous Cycle Alterations and LH Surge Attenuation - Pilot	All	43934404
non-guideline	non-guideline	Special Study - Estrous Cycle Alterations and LH Surge Attenuation - 28-day	All	43934406

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
non-guideline	non-guideline	Special Study - Estrous Cycle Alterations and LH Surge Attenuation - 6-month	All	44152102
non-guideline	non-guideline	Special Study - Hormone and Estrous Cycle Measurements in SD Rats	All	42085001, 42743902, 43598622
non-guideline	non-guideline	Special Study - Mammary Gland and Ovarian Histomorphology in SD Rats	All	43598622, 42085001, 42743902
non-guideline	non-guideline	Special Study - Two-Year Bioassay in F-344 Rats	All	42146101, 42743902, 43598622
non-guideline	non-guideline	Special Study - Hormone and Estrous Cycle Measurements in F-344 Rats	All	42743902, 42146101, 43598622
non-guideline	non-guideline	Special Study - Mammary Gland and Ovarian Histomorphology in F-344 Rats	All	43598622, 42146101, 42743902, 44917701
non-guideline	non-guideline	Special Study - Two-year Bioassay with the SD Strain of Rate	All	42204401
non-guideline	non-guideline	Special Study - Tumor Incidence in Ovariectomized (OVX) vs Intact Animals	All	44544701
non-guideline	non-guideline	Special Study - Sexual Maturation	All	45058702, 45722401
non-guideline	non-guideline	Long-Term Estrous Cycle Measurements	All	Unaudited draft report of the interim estrous cycle data from 44544701
non-guideline	non-guideline	Direct Comparison of LH Surge Attenuation of Atrazine, Simazine, and Dact	All	45471002, 45058701

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DATA REQUIREMENT				CITATION(S)
New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
non-guideline	non-guideline	Other published literature	All	Cooper et al. 1996 Shafer et al. 1999 Das et al. 2000 Cummings et al. 2000 Narotsky et al. 2000 Laws et al. 2000 Stoker et al. 2000
<b><u>TOXICOLOGY - Degradate DACT</u></b>				
870.1100	81-1	Acute Oral - Rat	All	43013201
870.3100	82-1A	Subchronic Oral Toxicity in Rats	All	43013207
870.3150 870.4100	82-1B 83-1B	Subchronic & Chronic Oral Toxicity in Dogs	All	41392401
870.3700	83-3	Developmental Toxicity in Rats	All	41392402
870.5100	84-2	Mutagenicity Study - Bacterial Reverse Mutation	All	40722302
870.5550	84-2	Mutagenicity Study - UDS Assay	All	40722303
<b><u>TOXICOLOGY - Degradate Desisopropyl Atrazine</u></b>				
870.1100	81-1	Acute Oral - Rat	All	43013201
870.3100	82-1A	Subchronic Oral Toxicity in Rats	All	43013205
870.3150	82-1B	Subchronic Oral Toxicity in Dogs	All	43013203
870.3700	83-3	Developmental Toxicity in Rats	All	43013208
870.5100	84-2	Mutagenicity Study - Bacterial Reverse Mutation Assay	All	43093101

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
870.5385	84-2	Mutagenicity Study - Mammalian Bone Marrow Chromosome Aberration Test	All	43093103
870.5550	84-2	Mutagenicity Study - UDS Assay	All	43093105
<b><u>TOXICOLOGY - Degradate Deethyl Atrazine</u></b>				
870.1100	81-1	Acute Tox - Rat	All	43013202
870.3100	82-1A	Subchronic Oral Toxicity in Rats	All	43013206
870.3150	82-1B	Subchronic Oral Toxicity in Dogs	All	43013203
870.3700	83-3	Developmental Toxicity in Rats	All	43013209
870.5100	84-2	Mutagenicity Study - Bacterial Reverse Mutation Assay	All	43093102
870.5385	84-2	Mutagenicity Study - Mammalian Bone Marrow Chromosome Aberration Test	All	43093104
870.5550	84-2	Mutagenicity Study - UDS Assay	All	43093106
<b><u>TOXICOLOGY - Degradate Hydroxyatrazine</u></b>				
870.3100	82-1A	Subchronic Oral Toxicity in Rats	All	41293501
870.3700	83-3	Developmental Toxicity in Rats	All	41065202
870.4100 870.4300	83-1A 83-5	Chronic Toxicity - Rat	All	43532001
870.5100	84-2	Mutagenicity Study - Bacterial Reverse Mutation Assay	All	40722304
870.5385	84-2	Mutagenicity Study - Mammalian Bone Marrow Chromosome Aberration Test	All	41479401

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DATA REQUIREMENT				CITATION(S)
New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
870.5550	84-2	Other Genetic Effects	All	40722305, 40888101
<b><u>EPIDEMIOLOGY</u></b>				
non-guideline	non-guideline	Cancer Epidemiologic Studies - Submitted to EPA	All	45152101, 45518401, 44008601
non-guideline	non-guideline	Cancer Epidemiologic Studies - Other Published Literature	All	Alvanja et al. 2003 Breckenridge 2002 Breckenridge 2003 MacLennan et al. 2002 MacLennan et al. 2003 Mills 1998
<b><u>OCCUPATIONAL/RESIDENTIAL EXPOSURE</u></b>				
875.1100 875.1300 875.1500	231 232 235	Applicator Exposure Monitoring (Dermal outdoor exposure, Inhalation outdoor exposure, Biological monitoring)	ABCJK	43934416, 43934417, 43934418, 44152109, 44152110, 44152111, 44315403, 44315404, 43598604
875.1500	235	Biological Monitoring	ABCJK	44597605 44597606
875.1100	231	Dermal Exposure	ABCJK	43016506
875.1100 875.1300	231 232	Exposure Monitoring (ORETF)	ABCJK	44972201
875.2100	132-1	Foliar Dislodgeable Residue Dissipation	ABCJ	44883601
875.2100	132-1	Transferable Residue Dissipation: Lawn and Turf	CK	44958001, 44958801, 45517301
840.1100 835.4200	201-1 202-1	Droplet Size Spectrum Drift Field Evaluation	ABCJK	Spray Drift Task Force (SDTF) data

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DATA REQUIREMENT				CITATION(S)
New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
non-guideline	non-guideline	Dermal Transfer Efficiency of Granular Atrazine Residues From Turf to Dry and Wetted Palms	CK	45622310, 45622311
non-guideline	non-guideline	Exposure Assessments	ABCJK	44152106, 44152108, 45399905, 44597604
ENVIRONMENTAL FATE				
835.2120	161-1	Hydrolysis of Parent and Degradates	ABCJK	40431319
835.2240	161-2	Photodegradation - Water	ABCJK	42089904, 45545301
835.2410	161-3	Photodegradation - Soil	ABCJK	40431320 42089905
835.2370	161-4	Photodegradation - Air	ABCJK	not applicable
835.4100	162-1	Aerobic Soil Metabolism	ABCJK	42089906
835.4200	162-2	Anaerobic Soil Metabolism	ABCJK	42089906
835.4400	162-3	Anaerobic Aquatic Metabolism	ABCJK	40431323
835.4300	162-4	Aerobic Aquatic Metabolism	ABCJK	<b>data gap</b>
835.1240	163-1	Leaching/Adsorption/Desorption	ABCJK	40431324, 40431325, 40431326, 40431327, 40431328
835-1410	163-2	Volatility-Lab	ABCJK	<b>data gap</b>
835-8100	163-3	Volatility-Soil	ABCJK	<b>data gap</b>
835.6100	164-1	Terrestrial Field Dissipation	ABCJK	42165504, 42165505, 40431336, 42165506, 40431337, 42165507
835.1200	164-2	Aquatic (sediment) Dissipation	ABCJK	not applicable

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
835.1300	164-3	Forestry Dissipation	ABCJK	40431340, 42041405
835.1500	164-5	Soil, Long Term Dissipation	ABCJK	40431339, 42089911, 40431337, 42089912, 40431338, 42089909, 40431336, 42089910
850.1730	165-4	Bioaccumulation in Fish	ABCJK	40431344
850.1950	165-5	Bioaccumulation in Non-Target Organisms	ABCJK	<b>Data gap</b>
ENVIRONMENTAL FATE - DRINKING WATER MONITORING DATA				
non-guideline	non-guideline	Atrazine Drinking Water Monitoring Data (PLEX & VMP)	All	43598634, 43934413, 43934414, 44152122, 44152123, 44152124, 44315414, 44597601, 44711001, 44856901, 44997001, 44997003, 45058703, 45058704, 45145601, 45209601, 45253401, 45475101, 45475102, 45545305, 45622305
non-guideline	non-guideline	Atrazine Drinking Water Monitoring Data (ARP)	All	45728401, 45730200, 45722700 Acetochlor Registration Partnership (ARP) Final Report for the State Monitoring Program
non-guideline	non-guideline	Atrazine Ground-Water Monitoring Data	All	43934414, 44222601, 44222602, 45399906, 45545304

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
<b><u>RESIDUE CHEMISTRY</u></b>				
860.1300	171-4A	Nature of Residue - Plants	AB	00023324 00023529 00022474 00024786 00055672 00149428 00161854 00016306 41209801 42547116 42547115 43016503 43048501 43598628 43598629 44152119 44152120 44152121 44315408 44315409
860.1300	171-4B	Nature of Residue - Livestock	AB	00022857 00038297 00161854 00016306 00038294 40431352 40431353 40431354 40431355 40431356 40431357 40437502 41209802 41209803 41209804 41209806 41209807 41209808 42925601 43508501 43934412
860.1340	171-4C	Residue Analytical Method - Plants	AB	00016401 00016402 00016403 00023499 00023502 00024480 00024482 00055644 00093520 40431365 41397102 42547118 42547119 43016504 44315412 43395502
860.1340	171-4D	Residue Analytical Method - Animals	AB	00023280 00023502 00161854 40431364 40431369 40431370 40431422 40431424 41397103 42547120 42547121 42547122 42547123
860.1360		Multiresidue Methods	AB	41423401

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DATA REQUIREMENT				CITATION(S)
New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
860.1380	171-4E	Storage Stability	AB	00024482 40431421 40431426 41258601 41258602 41258603 41397101 43395503
860.1480	171-4J	Magnitude of Residues - Meat, Milk, Poultry, Eggs  Milk and the Fat, Meat, and Meat Byproducts of Cattle, Goats, Hogs, Horses, and Sheep  Eggs and the Fat, Meat, and Meat Byproducts of Poultry	AB	00026977, 00080629, 00093524, 40431424  40431422, 40431423
860.1500	171-4K	Crop Field Trials - Macadamia Nuts	AB	00024799, 40431418
860.1500	171-4K	Crop Field Trials - Corn, field and sweet, K+CWHR	AB	00094135, 00093523, 40431401, 42547117, 43598630, 44152117, 44315410, 44597602, 45399901
860.1500	171-4K	Crop Field Trials - Sorghum grain	AB	00093523, 40431383, 43598631, 43598632, 44152118, 44315411, 44597603, 45399902
860.1500	171-4K	Crop Field Trials - Wheat grain	AB	00024475, 40431420, 43160502
860.1500	171-4K	Crop Field Trials - Corn forage and stover	AB	00093520 00093523 00094135 40431401 43598630 44152117 44315410 44597602
860.1500	171-4K	Crop Field Trials - Sorghum forage and stover	AB	00093523 40431383 43598631 43598632 44315411 44597603
860.1500	171-4K	Crop Field Trials - Wheat forage, fodder, and straw	AB	00024475 00067425 40431420 43160502 <b>data gap</b>

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New Guideline Number	Old Guideline Number	Study Title	Use Pattern	MRID Number
860.1500	171-4K	Crop Field Trials - Orchardgrass, orchardgrass hay, rye, perennial	AB	00024487
860.1500	171-4K	Crop Field Trials - RangeGrasses	AB	00126712 <b>data gap</b>
860.1500	171-4K	Crop Field Trials - Guava	AB	00055643
860.1500	171-4K	Crop Field Trials - Sugarcane	AB	00115588, 43160504
860.1520	171-4L	Processed Foods (Corn)	AB	43160505
860.1520	171-4L	Processed Foods (Sorghum)	AB	43160503
860.1520	171-4L	Processed Foods (Sugarcane)	AB	43160504, 43395504 <b>data gap</b>
860.1520	171-4L	Processed Foods (Wheat)	AB	43160502
860.1850	165-1	Confined Rotational Crop	AB	43016505
860.1900	165-2	Field Rotational Crop	AB	43160501
PROBABILISTIC ASSESSMENTS				
non-guideline	non-guideline	Probabilistic Drinking Water Exposure Assessment	All	45503101, 45503102, 45622306, 45629401, 45711308
non-guideline	non-guideline	Probabilistic Ecological Risk Assessment	All	45299501, 45299505, 45622302, 45622303