

Appendix N – Summary of Fate Data

161-1 Hydrolysis

MRID	Citation Reference
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0040539	
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161-2 Photodegradation-water

MRID	Citation Reference
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40183418	Nelsen, T. (1987) An Aqueous Photolysis Study with [Carbon 14]- 2,4,5,6-Tetrachloroisophthalonitrile (Chlorothalonil), SDS- 2787: Ricerca Study No. 85-0075. Unpublished study prepared by Ricerca, Inc. 59 p.
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41030001	Doran, T. (1989) An Aqueous Photolysis Study with ^Carbon 14 -2,4, 5,6-Tetrachloroisothalonitrile (Chlorothalonil), SDS-2787: Document No. 1185-85-0075-EF-001. Unpublished study prepared by Ricerca, Inc. 35 p.
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45710223	Kirkpatrick, D. (1996) Chlorothalonil Photodegradation in Water: Lab Project Number: VCM 42/951419: VCM/42. Unpublished study prepared by Huntingdon Research Centre Ltd. 78 p.
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40540	Szalkowski, M.B. (1976) Photodegradation of Daconil in Aqueous Systems. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096466-C)
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87281	Wolfe, A.L. (1972) The Effect of Ultraviolet Radiation on 4- Hydroxy-2,5,6-trichloroisophthalonitrile in Aqueous Solutions. (Unpublished study received Aug 11, 1970 under 1F1024; submitted by Diamond Shamrock Chemical Co., Cleveland, Ohio; CDL:093333-A)
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161-3 Photodegradation-soil

MRID	Citation Reference
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40541	Szalkowski, M.B. (1976) Photodegradation of Daconil and Its Metabolite, 4-Hydroxy-2,5,6-trichloroisophthalonitrile, on Inert Surfaces. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096466-D)
40542	Szalkowski, M.B. (1975) Photodegradation of Daconil and 4-Hydroxy-2,5,6-trichloroisophthalonitrile on Silica Gel Plates. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096466-E)
40543	Szalkowski, M.B. (19??) Photodegradation and Mobility of Daconil and Its Major Metabolite on Soil Thin Films. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096466-F)
87348	Szalkowski, M.B. (1975) Photodegradation of Daconil and 4-Hydroxy-2,5,6-trichloroisophthalonitrile on Silica Gel Plates. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:097394-D)
87349	Szalkowski, M.B. (1975) Photodegradation and Mobility of Daconil and Its Major Metabolite on Soil Thin Films. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:097394-E)
143751	Szalkowski, M. (19??) Photodegradation and Mobility of Daconil and Its Major Metabolite on Soil Thin Films. Unpublished study prepared by Diamond Shamrock Corp. 35 p. UNACCEPTABLE:
156470	Nelson, T. (1985) Scientific Validity of the [Carbon-14] Chlorothalonil Soil Photolysis Study. Unpublished study prepared by SDS Biotech Corp. 27 p.
41030002	Nelsen, T. (1989) Photodegradation and Mobility of Daconil and Its Major Metabolite on Soil Thin Films. Unpublished study prepared by Fermenta Plant Protection Co. 22 p.

162-1 Aerobic soil metabolism

MRID	Citation Reference
40547	Szalkowski, M.B. (1976) Effect of Microorganisms upon the Soil Metabolism of Daconil and 4-Hydroxy-2,5,6-trichloroisophthalonitrile. (Unpublished study received Feb 25, 1976 under 6F1749; prepared in cooperation with Ohio State Univ., Soil Testing Laboratory, submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096466-J)

87285	Duane, W.C. (1970) Biodegradation of Daconil 2787. (Unpublished study received Aug 11, 1970 under 1F1024; submitted by Diamond Shamrock Chemical Co., Cleveland, Ohio; CDL:093333-E).
87351	Szalkowski, M.B. (1976) Effect of Microorganisms upon the Soil Metabolism of Daconil and 4-Hydroxy-2,5,6-trichloroisophthalo- nitrile. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:097394-I)
114035	Diamond Shamrock Chemical Co. (1970) The Results of Tests on the Amount of Residue Remaining, Including a Description of the Analytical Method Used: ?Daconil 2787 . (Compilation; unpub- lished study received Sep 1, 1971 under 1F1024; CDL:091899-B)
43879601	Duane, W. (1995) Aerobic Metabolism of (carbon 14)-Chlorothalonil in Soil: Lab Project Number: 93-0295: SDS-2787: 5905-93-0295-EF-002. Unpublished study prepared by Ricerca, Inc. 105 p.
47207702	Gibbings, E.; Bramley, Y. (2000) Chlorothalonil: Aerobic Soil Degradation at Four Treatment Rates: Final Report. Project Number: TMJ4487B, T003973/07. Unpublished study prepared by Syngenta Jealotts Hill International. 37 p.
47207703	Bramley, Y.; Gibbings, E. (2001) Chlorothalonil: Degradation in Aerobic Soil: Final Report. Project Number: RJ3099B, T003974/07. Unpublished study prepared by Syngenta Jealotts Hill International. 68 p.

162-2 Anaerobic soil metabolism

MRID	Citation Reference
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162-3 Anaerobic aquatic metab.

MRID	Citation Reference
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45330901	Gentle, W. (1999) Chlorothalonil: Dissipation in a 30cm Deep Indoor Aquatic Microcosm: Lab Project Number: TMJ4216B. Unpublished study prepared by Zeneca Agrochemicals. 15 p.
147975	Nelsen, T. (1985) An Anaerobic Aquatic Soil Metabolism Study with [Radiolabeled Carbon]-chlorothalonil: Document No. 680-3EF-84- 0026-001. Unpublished study prepared by SDS Biotech Corp. 68 p.

162-4 Aerobic aquatic metab.

MRID	Citation Reference
42226101	Hatzenbeler, C. (1991) An Aerobic Aquatic Soil Metabolism Study with ¹⁴ C-Chlorothalonil: Lab Project Number: 90-0240; 3163-90-0240-EF-001. Unpublished study prepared by Ricerca, Inc. 137 p.
43890604	Frazier, H. (1995) Chlorothalonil--A Summary of Aerobic Aquatic Degradation Data (Half-Life Values) in Natural Water: Lab Project Number: 5980-95-0263-EF-001: 95-0263: J9203008. Unpublished study prepared by Ricerca, Inc. and Toxikon Environmental Sciences. 65 p.
47207701	Hurt, A.; Oliver, S. (2002) Chlorothalonil: Degradation of (Carbon 14)-Labelled Compound in Natural Water Sediment Systems Under Laboratory Conditions: Final Report. Project Number: RJ3227B, T003976/07. Unpublished study prepared by Syngenta Jealotts Hill International. 86 p.

163-1 Leach/adsorp/desorption

MRID	Citation Reference
29406	Szalkowski, M.B.; Stallard, D.E. (1980) Adsorption of Chloro- thalonil (2,4,5,6-Tetrachloroisophthalonitrile) DS-2787. (Un- published study received Feb 19, 1980 under 677-313; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:099248-D)
29407	Szalkowski, M.B.; Mannion, J.J.; Stallard, D.E.; et al. (1979) Quantitation and Characterization of the Biotransformation Pro- ducts of 2,4,5,6-Tetrachloroisophthalonitrile (Chlorothalonil, DS-2787) in Soil. (Unpublished study received Feb 19, 1980 un- der 677-313; submitted by Diamond Shamrock Agricultural Chemi- cals, Cleveland, Ohio; CDL:099248-E)
40546	Szalkowski, M.B. (1976) Leaching of Degradation Products. (Unpub- lished study received on unknown date under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096466-I)
71058	Johnston, E.F. (1981) Soil Disappearance Studies with Benlate [®] Fungicide and Bravo [®] 500 F Fungicide, Alone and in Combina- tion: Document No. AMR-06-81. (Unpublished study received Feb 27, 1981 under 352-354; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:244633-B)
87286	Wolfe, A.L.; Stallard, D.E. (1968) The Fate of DAC-3701 (4-Hydroxy- 2,5,6-trichloroisophthalonitrile) in Soil. (Unpublished study received Aug 11, 1970 under 1F1024;

submitted by Diamond Shamrock Chemical Co., Cleveland, Ohio; CDL:093333-F)

- 87332 Stallard, D.E.; Wolfe, A.L. (1967) The Fate of 2,4,5,6-Tetrachloroisophthalonitrile (Daconil 2787) in Soil. (Unpublished study received May 17, 1967 under 7F0599; submitted by Diamond Alkali Co., Cleveland, Ohio; CDL:090770-J)
- 87349 Szalkowski, M.B. (1975) Photodegradation and Mobility of Daconil and Its Major Metabolite on Soil Thin Films. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:097394-E)
- 87350 Szalkowski, M.B. (1976) Leaching of Degradation Products: ?Daconil|. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:097394-H)
- 87369 Skinner, W.A.; Wolfe, A.L.; Stallard, D.E. (1965) Determinations of the Fate of 2,4,5,6-Tetrachloroisophthalonitrile (Daconil 2787) in Soil. (Unpublished study received Sep 30, 1965 under 677- 229; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:120430-A)
- 115105 Capps, T.; Marciniszyn, J.; Marks, A.; et al. (1982) Adsorption and Desorption of Chlorothalonil to Soils: Document No. 555-4EF-81- 0216-001. (Unpublished study received Sep 21, 1982 under 0F2405; submitted by Diamond Shamrock Corp., Cleveland, OH; CDL: 071096-B)
- 137232 Nelsen, T.; Marks, A.; Ignatoski, J. (1983) Mobility of Chlorothalonil and Metabolites in Soil: Document No. 000-3EF-83-0112-002; Report/DS-2787. (Unpublished study received Dec 20, 1983 under 50534-8; submitted by SDS Biotech Corp., Painesville, OH; CDL: 252253-A)
- 138144 Vonk, J.; Van Den Hoven, A.; De Jong, P.; et al. (1983) Mobility of Chlorothalonil and Metabolites in Soil: Report No. 83/0684a/ 4205-61044/HV/IH. (Unpublished study received Jan 10, 1984 under 50534-8; prepared by Institute of Applied Chemistry TNO, Neth., submitted by SDS Biotech Corp., Painesville, OH; CDL: 072267-A)
- 143752 Nelson, T. (1985) An Aged Soil Leaching Study with [Carbon-14]- Chlorothalonil (2, 4, 5, 6-Tetrachloroisophthalonitrile). Unpublished study prepared by SDS Biotech Corporation. 13 p.
- 153730 Nelson, T. (1985) An Aged Soil Leaching Study with [Carbon-14]- Chlorothalonil (2, 4, 5, 6-Tetrachloroisophthalonitrile): Report No. SDS-2787. Unpublished study prepared by SDS Biotech Corp. 71 p.
- 153731 Capps, T. (1982) Adsorption and Desorption of Chlorothalonil to Soils: Report No. DS-2787. Unpublished study prepared by Diamond Shamrock Corp. 57 p.

44483404 Waller, R. (1992) Adsorption and Desorption of SDS-46851 to Soils: Lab Project Number: 90-0374: 3605-90-0374-EF-001: REPORT/SDS-46851. Unpublished study prepared by Ricerca, Inc. 102 p.

44483405 Archer, G. (1991) Adsorption and Desorption of SDS-3701 to Soils: Lab Project Number: 90-0375: 3606-90-0375-EF-001: REPORT/SDS-3701. Unpublished study prepared by Ricerca, Inc. 120 p.

163-2 Volatility - lab

MRID	Citation Reference
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143751	Szalkowski, M. (19??) Photodegradation and Mobility of Daconil and Its Major Metabolite on Soil Thin Films. Unpublished study prepared by Diamond Shamrock Corp. 35 p.
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164-1 Terrestrial field dissipation

MRID	Citation Reference
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71625	Nixon, W.B. (1981) Tank Mix Soil Dissipation Studies: Ridomil ^(R) / Bravo ^(R) ; Ridomil ^(R) /Difolatan ^(R) ; Ridomil ^(R) /Dithane M- 45 ^(R) : Report No. EIR-81003. (Unpublished study received Apr 15, 1981 under 100-607; submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:070010-A)
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71627	Ciba-Geigy Corporation (1980) Tank Mix Soil Dissipation Studies with Various Chemicals : AG-A 4801 I, II A. (Compilation; unpublished study, including AG-A 4801 I, II, III, 2nd Report A, 4802 I, II, III, 4802 I, II, III, Second Report B..., received Apr 15, 1981 under 100-607; CDL:070010-E)
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87296	Stallard, D.E.; Wolfe, A.L.; Duane, W.C. (1972) Evaluation of the Leaching of Chlorothalonil under Field Conditions and Its Potential To Contaminate Underground Water Supplies. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Chemical Co., Cleveland, Ohio; CDL:098072-R)
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87300	Wolfe, A.L.; Stallard, D.E. (1965) Residue of Tetrachloroisophthalonitrile (Forturf) in Soil Resulting from Foliar Application to Established Turf. (Unpublished study received Dec 21, 1965 under unknown admin. no.; submitted by Diamond Shamrock Chemical Co., Cleveland, Ohio; CDL:110552-A)
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87332	Stallard, D.E.; Wolfe, A.L. (1967) The Fate of 2,4,5,6-Tetrachloroisophthalonitrile (Daconil 2787) in Soil. (Unpublished study received May 17, 1967 under 7F0599; submitted by Diamond
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Alkali Co., Cleveland, Ohio; CDL:090770-J)

- 87369 Skinner, W.A.; Wolfe, A.L.; Stallard, D.E. (1965) Determinations of the Fate of 2,4,5,6-Tetrachloroisophthalonitrile (Daconil 2787) in Soil. (Unpublished study received Sep 30, 1965 under 677- 229; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:120430-A)
- 41564828 Rose, C.; Ballee, D. (1988) Determination of Residues (Field-Soil Dissipation) of Tetrachloroisophthalonitrile (Chlorothalonil, SDS-2787), Its Soil Metabolites and Manufacturing Impurities in Soil from Bravo Treated Areas-Donalsonville, GA-1986-1988: Lab Project Number: 1401-86-0084-CR-002: 1401-86-0084. Unpublished study prepared by Ricerca, Inc. 413 p.
- 41564829 Formanik, J. (1989) Field-Soil Dissipation of Residues of Tetra- chloroisophthalonitrile (Chlorothalonil, SDS-2787), Its Soil Metabolites and Manufacturing Impurities in Soil from Bravo Treated Areas-Fresno, CA-1986-1988: Lab Project Number: 1401-86- 0084-cr-003: 1401-86-0084. Unpublished study prepared by Ri- cerca, Inc. 550 p.
- 41564830 King, C. (1989) Field-Soil Dissioation of Residues of Tetrachloro- isophthalonitrile (Chlorothalonil, SDS-2787), Its Degradation Products and Manufacturing Impurities in Soil from Bravo Treated Areas-Greenfird, CA.-1986-1988: Lab Project Number: 1401-86- 0084-CR-004. Unpublished study prepared by Ricerca, Inc. 361 p.
- 42433813 Kenyon, R.; Ballee, D. (1991) Field Soil Dissipation of Residues of Tetrachloroisophthalonitrile (Chlorothalonil, SDS-2787), It's Soil Metabolites and Manufacturing Impurities in Soil from Bravo Treated Areas--Phelps, NY: 1986-1988: Lab Project Number: 86-0084: 1401-86-0084-CR-018. Unpublished study prepared by ISK Biotech Corp. 340 p.
- 42433814 Kenyon, R. (1991) Residues of Tetrachloroisophthalonitrile (Chlorothalonil, SDS-2787), It's Degradation Products and Manufacturing Impurities in Soil from a Stability Study--One Year Interim Report: Lab Project Number: 3436-89-0375: 3436-89-0375-CR-001. Unpublished study prepared by Ricerca, Inc. 137 p.
- 42875907 Jacobson, B.; Schollenberger, J. (1992) Dissipation of 4-Hydroxy-2,4,5-Trichloroisophthalonitrile (SDS-3701) in Soil: A Re-analysis of Chlorothalonil Soil Dissipation Data: Lab Project Number: 1874-T. Unpublished study prepared by Ricerca, Inc. 23 p.
- 44006001 Ricerca, Inc. (1996) Environmental Fate of Chlorothalonil and Metabolites in Soil, Plants, Surface Water and Ground Water--Additional New Information: Lab Project Number: EF-96-HF-020-001-001: WR 1201T: 762-3AS-86-0010-000. Unpublished study. 206 p.

164-2 Aquatic field dissipation

MRID	Citation Reference
127861	Diamond Shamrock Agricultural Chemicals (1982) ?Bravo: Residues in Rice and Other Subjects . (Compilation; unpublished study received Apr 21, 1983 under 677-313; CDL:071553-B)
45908001	Kirkpatrick, D. (1996) Chlorothalonil Degradability and Fate in Water/Sediment Systems: Lab Project Number: VCM 45: VCM 45/962245. Unpublished study prepared by Technology Sciences Group Inc. 126 p.

165-0 Accumulation Studies -- General

MRID	Citation Reference
115104	Marciniszyn, J.; Marks, A.; Ignatoski, J. (1982) Characterization and Quantitation of 14C-residues in Water, Soil and Fish Exposed to 14C-2,4,5,6-tetrachloroisophthalonitrile (Chlorothalonil, DS-2787) in a Static Aquatic System: Document No. 078-3EI-79- 0030-002. (Unpublished study received Sep 21, 1982 under 0F2405; submitted by Diamond Shamrock Corp., Cleveland, OH; CDL: 071096-A)
127860	Stallard, D.; Marks, A.; Ignatoski, J.; et al. (1982) Evaluation of the Residues of ... Chlorothalonil, DS-2787 and ... DS-3701 on Rice Straw, Rice Grain and the Impact of Rice Paddy Ecology: Document No. 069-3CR-82-0136-001. (Unpublished study received Apr 21, 1983 under 677-313; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, OH; CDL:071553-A)
127862	Hutchinson, C.; Shults, S.; Killeen, J.; et al. (1982) Aquatic Field Study with Bravo 500: Document No. 518-5TX-81-0171-003. (Unpublished study received Apr 21, 1983 under 677-313; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, OH; CDL:071552-A)
137146	Shults, S.; Killeen, J.; Ignatoski, J. (1982) Aquatic Field Study with Bravo 500: Document No. 518-5TX-81-0171-003. (Unpublished study received Jan 18, 1984 under 50534-8; prepared by Diamond Shamrock Corp., submitted by SDS Biotech Corp., Painesville, OH; CDL:072280-A)