

APPENDIX B

SELECTED MASS BALANCES AT 75 h⁹

Case 1A pH 9, 90 °C, 10 ⁻⁵ M I ⁻ Γ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.9E-03	9.7E+01	1.1	2.0
LIRIC	2.1E-03	9.9E+01	1.4E-01	1.0
IMPAIR	2.2E-02	9.8E+01	3.0E-02	1.6
INSPECT	2.7E-02	9.8E+01	1.9	2.8E-04
IODE-IPSN	9.0E-02	1.0E+02	1.0E-02	3.0E-02
IODE NRIR	7.4E-04	1.0E+02	data not available	data not available

Case 1A pH 5, 90 °C, 10 ⁻⁵ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.8E-02	5.5	3.4E+01	6.0E+01
LIRIC	2.5E-02	1.5	1.2E+01	8.6E+01
IMPAIR	2.9E+01	3.0E+01	4.0E+01	5.9E-01
INSPECT	1.28E-01	5.3	3.1E+01	6.3E+01
IODE-IPSN	9.0E-02	1.8	3.2E+01	6.6E+01
IODE NRIR	1.0E-01	3.8E+01	2.0E+01	4.2E+01

Case 1B pH 9, 130°C, 10 ⁻⁵ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	5.9E-04	9.7E+01	5.7E-01	2.4
LIRIC	1.9E-04	9.8E+01	5.6E-02	1.5
IMPAIR	4.0E-03	9.3E+01	1.0E-02	7.5
INSPECT	3.9E-02	9.8E+01	1.8	1.8E-04
IODE-IPSN	4.0E-03	1.0E+02	3.0E-02	1.0E-02
IODE NRIR	5.0E-05	1.0E+02	data not available	data not available

⁹ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B. SELECTED MASS BALANCES AT 75 h¹⁰ (continued)

Case 1B pH 5, 130°C, 10 ⁻⁵ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	6.7E-03	4.4E+01	1.1E+01	4.5E+01
LIRIC	4.2E-03	1.1E+01	6.4	8.3E+01
IMPAIR	2.5E+01	3.1E+01	4.1E+01	2.7
INSPECT	1.5E-01	1.0E+01	1.4E+01	7.6E+01
IODE-IPSN	3.0E-03	1.4	1.6E+01	8.3E+01
IODE NRIR	3.0E-02	3.75E+01	2.0E+01	4.2E+01

Case 1C pH 9, 60°C, 10 ⁻⁵ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.8E-02	9.7E+01	1.3E+00	1.7
LIRIC	7.0E-03	9.8E+01	4.7E-01	1.3
IMPAIR	5.3E-02	9.8E+01	4.8E-02	2.1
INSPECT	3.1E-02	9.8E+01	1.5	5.3E-04
IODE-IPSN	4.2E-01	9.9E+01	5.0E-02	6.0E-02
IODE NRIR	2.0E-02	1.0E+02	data not available	data not available

Case 1C pH 5, 60°C, 10 ⁻⁵ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	7.4E-02	5.4E-02	4.4E+01	5.6E+01
LIRIC	3.2E-02	5.4E-01	2.7E+01	7.3E+01
IMPAIR	3.6E+01	2.9E+01	3.3E+01	1.3
INSPECT	1.0E-01	2.2	4.3E+01	5.5E+01
IODE-IPSN	9.8E-01	3.7	4.1E+01	5.5E+01
IODE NRIR	1.6	4.0E+01	2.5E+01	3.3E+01

¹⁰ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹¹ (continued)

Case 2A pH 9, 90°C, 10 ⁻⁶ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.9E-03	9.7E+01	1.1	2.0
LIRIC	4.2E-03	1.0E+02	1.4E-02	1.0E-01
IMPAIR	1.9E-02	9.8E+01	2.5E-02	1.6
INSPECT	2.2E-01	8.3E+01	1.6E+01	1.7E-03
IODE-IPSN	9.0E-02	1.0E+02	4.0E-03	1.0E-02

Case 2A pH 5, 90°C, 10 ⁻⁶ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.8E-02	4.7	3.3E+01	6.2E+01
LIRIC	4.1E-02	1.0E+01	1.1E+01	7.9E+01
IMPAIR	2.9E+01	3.1E+01	3.9E+01	6.0E-01
INSPECT	2.9E-01	5.0E+01	2.4E+01	2.5E+01
IODE-IPSN	9.0E-02	3.5	3.1E+01	6.5E+01
IODE-NRIR	1.0E-01	3.8E+01	2.0E+01	4.2E+01

Case 2B pH 9, 90°C, 10 ⁻⁴ M I ⁻ 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.8E-03	9.7E+01	1.1	2.0
LIRIC	1.3E-03	9.7E+01	3.5E-01	2.6
IMPAIR	3.2E-02	9.8E+01	4.4E-02	1.6
INSPECT	1.0E-03	1E+02	6.9E-02	3.6E-05
IODE-IPSN	9.0E-02	1.0E+02	4.0E-02	9.0E-02
IODE-NRIR	2.5E-02	1.0E+02	data not available	data not available

¹¹ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹² (continued)

Case 2B pH 5, 90°C, 10 ⁻⁴ M I 1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.39E-01	12.0E+01	3.6E+01	5.2E+01
LIRIC	1.9E-02	9.2E-01	7.8E+01	2.1E+01
IMPAIR	2.9E+01	3.0E+01	4.0E+01	5.9E-01
INSPECT	4.5E-02	3.0	3.1E+01	6.7E+01
IODE-IPSN	9.0E-02	1.7	3.2E+01	6.6E+01
IODE-NRIR	1.0E-01	3.8E+01	2.0E+01	4.2E+01

Case 3A pH 9, 90°C, 10 ⁻⁵ M I 10kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.2E-03	9.1E+01	3.26	6.07
LIRIC	2.2E-03	9.9E+01	1.4E-01	1.1
IMPAIR	1.9E-02	9.8E+01	2.7E-02	1.6
INSPECT	8.5E-02	9.5E+01	5.0	6.8E-04
IODE-IPSN	8.8E-01	9.9E+01	4.0E-02	9.0E-02
IODE-NRIR	1.0E-02	1.0E+02	data not available	data not available

Case 3A pH 5, 90°C, 10 ⁻⁵ M I 10kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.4E-02	1.9e-2	6.4E+01	3.6E+01
LIRIC	4.3E-02	1.6	1.2E+01	8.6E+01
IMPAIR	4.1E+01	1.6	5.7E+01	8.0E-04
INSPECT	1.2E-01	1.9E+01	2.6E+01	5.5E+01
IODE-IPSN	5.0E-02	1.8	3.2E+01	6.6E+01
IODE-NRIR	5.4E-02	5.1E-01	3.2E+01	6.7E+01

¹² Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹³ (continued)

Case 3B pH 9, 90°C, 10 ⁻⁵ M I ⁻ 0.1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.2E-03	9.9E+01	3.4E-01	6.4E-01
LIRIC	6.8E-03	9.9E+01	1.4E-01	1.0
IMPAIR	2.3E-02	9.8E+01	2.4E-01	1.6
INSPECT	7.7E-03	9.9E+01	6.3E-01	3.8E-05
IODE-IPSN	1.0E-02	1.0E+02	0.0E+00	1.0E-02
IODE-NRIR	1.0E-04	1.0E+02	data not available	data not available

Case 3B pH 5, 90°C, 10 ⁻⁵ M I ⁻ 0.1kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	5.2E-03	3.9E+01	2.2E+01	3.9E+01
LIRIC	3.2E-03	1.3	1.2E+01	8.6E+01
IMPAIR	4.8	8.7E+01	6.6	1.5
INSPECT	1.2E-01	1.9E+01	2.6E+01	5.5E+01
IODE-IPSN	9.0E-02	6.6E+01	1.1E+01	2.3E+01
IODE-NRIR	1.1E-02	9.0E+01	3.1	6.4

Case 4A, 90°C, 10 ⁻⁵ M I ⁻ 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.5E-02	3.2E-01	3.6E+01	6.4E+01
LIRIC	9.6E-03	3.9E-01	8.7E+01	1.2E+01
IMPAIR	3.6E+01	1.3E+01	5.0E+01	4.1E-01
INSPECT	1.1E-01	8.0E+01	3.2E+01	6.7E+01
IODE-IPSN	1.1E-01	8.0E-02	3.2E+01	6.8E+01
IODE-NRIR	1.4E-01	3.7E+01	2.0E+01	4.3E+01

¹³ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹⁴ (continued)

Case4B 90°C, 10 ⁻⁴ M I I kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.74E-01	1.9	4.1E+01	5.7E+01
LIRIC	1.2E-02	4.2E-01	2.1E+01	7.9E+01
IMPAIR	3.6E+01	1.3E+01	5.0E+01	4.1E-01
INSPECT	2.9E-02	8.5E-02	3.1E+01	6.9E+01
IODE-IPSN	1.1E-01	4.0E-02	3.2E+01	6.8E+01
IODE-NRIR	1.4E-01	3.6E+01	2.0E+01	4.3E+01

Case 4C 90°C, 10 ⁻⁶ M I I kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	7.7E-03	2.1E-01	3.5E+01	6.5E+01
LIRIC	1.6E-02	2.7E+00	1.2E+01	8.6E+01
IMPAIR	3.6E+01	1.3E+01	5.0E+01	4.1E-01
INSPECT	3.9E-01	7.9E+00	3.7E+01	5.5E+01
IODE-IPSN	1.2E-01	5.4E-01	3.2E+01	6.7E+01
IODE-NRIR	1.4E-01	3.7E+01	2.0E+01	4.3E+01

Case5A 90°C, 10 ⁻⁵ M I I kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.9E-02	8.4E+01	5.8	1.1E+01
LIRIC	9.3E-03	7.9E+01	2.5	1.9E+01
IMPAIR	No Data	No Data	No Data	No Data
INSPECT	2.0E-02	9.8E+01	1.5	2.1E-05
IODE-IPSN	2.1E-01	9.5E+01	1.6	3.3

¹⁴ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹⁵ (continued)

Case5B 90°C, 10 ⁻⁵ M I 10 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	4.0E-02	5.4E+01	1.6E+01	3.0E+01
LIRIC	1.1E-02	7.2E+01	3.3	2.4E+01
IMPAIR	NO Data	NO Data	NO Data	NO Data
INSPECT	6.9E-02	9.6E+01	3.7	4.4E-5
IODE-IPSN	1.7	8.4E+01	4.6	9.6

Case 5C 60°C, 10 ⁻⁵ M I 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.4E-01	7.6E+01	1.0E+01	1.3E+01
LIRIC	8.7E-02	5.9E+01	1.1E+01	3.0E+01
IMPAIR	No Data	No Data	No Data	No Data
INSPECT	2.5E-02	9.9E+01	1.3E+00	5.3E-05
IODE-IPSN	9.7E-01	8.6E+01	5.4	7.3

Case 6A pH 9, 90°C, 10 ⁻⁵ M I 1 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.4E-02	9.8E+01	1.4E-01	2.0
LIRIC	3.6E-02	9.9E+01	1.9E-02	1.0
IMPAIR	3.3E-02	9.8E+01	1.5E-02	1.6
INSPECT	2.3E-02	9.8E+01	1.8	2.8E-04
IODE-IPSN	4.0E-02	1.0E+02	1.0E-02	3.0E-02

¹⁵ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹⁶ (continued)

Case 6A pH 5, 90°C, 10 ⁻⁵ M I ⁻ 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	4.1E-01	1.5E+01	5.9	7.8E+01
LIRIC	9.1E-02	2.0	1.8	9.6E+01
IMPAIR	4.9E+01	2.8E+01	2.2E+01	5.6E-01
INSPECT	1.0E-01	5.4	3.1E+01	6.4E+01
IODE-IPSN	1.8E-02	1.8	3.1E+01	6.7E+01
IODE-NRIR	4.4E-02	3.8E+01	8.6	5.3E+01

Case 6B pH 9, 130°C, 10 ⁻⁵ M I ⁻ 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	2.1E-03	9.7E+01	2.1E-01	2.4
LIRIC	2.1E-03	9.9E+01	2.3E-02	1.5
IMPAIR	8.7E-03	9.2E+01	1.1E-03	7.5
INSPECT	3.0E-02	9.8E+01	1.8	2.8E-04
IODE-IPSN	2.0E-03	1.0E+02	3.0E-03	1.4E-02

Case 6B pH 5, 130°C, 10 ⁻⁵ M I ⁻ 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.2E-02	4.9E+01	4.3	4.7E+01
LIRIC	5.5E-03	2.8	1.6	9.6E+01
IMPAIR	5.8E+01	3.3E+01	6.1E+00	2.8
INSPECT	1.1E-01	1.2E+01	1.4E+01	7.6E+01
IODE-IPSN	1.1E-03	1.4	1.6E+01	8.3E+01
IODE-NRIR	2.9E-02	3.8E+01	1.0E+01	5.2E+01

¹⁶ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹⁷ (continued)

Case 7A pH 9, 90°C, 10 ⁻⁴ M I 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	8.8E-04	2.1E+01	5.5E-01	1.0
LIRIC	2.8E-04	1.5E+01	1.5E-01	1.3
IMPAIR	3.1E-02	9.4E+01	4.0E-02	1.6
INSPECT	2.5E-04	1.5E-03	1.6E-02	5.3E-07
IODE-IPSN	6.8E-04	7.3E-01	4.8E-03	1.0E-02

Case 7A pH 5, 90°C, 10 ⁻⁴ M I 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	4.6E-04	1.4E-03	6.9E-01	1.3
LIRIC	1.3E-04	1.1E-04	1.8E-01	1.5
IMPAIR	2.9E+01	2.8E+01	4.0E+01	5.6E-01
INSPECT	1.1E-03	1.7E-02	7.1E-04	6.6E-02
IODE-IPSN	Missing Data	Missing Data	Missing Data	Missing Data

Case 7B pH 9, 90°C, 10 ⁻⁵ M I 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.1E-04	2.3E+01	5.6E-02	1.0E-01
LIRIC	1.6E-03	5.5E+01	7.8E-02	6.9E-01
IMPAIR	2.2E-02	9.8E+01	2.9E-02	1.6
INSPECT	2.2E-03	1.5E-02	1.3E-01	1.4E-06
IODE-IPSN	9.1E-07	1.0E-06	2.4E-10	5.1E-10

¹⁷ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹⁸ (continued)

Case 7B pH 5, 90°C, 10 ⁻⁵ M I ⁻ 1 kGy/h	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.6E-04	2.8E-06	7.4E-02	1.4E-01
LIRIC	4.4E-04	7.9E-04	1.7E-01	1.3
IMPAIR	2.9E+01	3.1E+01	4.0E+01	5.6E-01
INSPECT	5.6E-03	1.6E-01	3.5E-01	4.1E-02
IODE-IPSN	8.3E-06	1.1E-04	1.4E-04	2.9E-04

Case 8A pH 9, 90°C, 10 ⁻⁵ M I ⁻ kGy/h 10 ⁻³ M RH	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	8.5E-03	9.7E+01	1.1	2.0
LIRIC	2.2E-02	9.9E+01	1.4E-01	1.0
IMPAIR	4.9E-02	9.8E+01	6.6E-02	1.6
INSPECT	No Data	No Data	No Data	No Data
IODE-IPSN	2.3E-01	1.0E+02	1.0E-02	3.0E-02

Case 8A pH 5, 90°C, 10 ⁻⁵ M I ⁻ 1 kGy/h 10 ⁻³ M RH	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	1.5E-01	5.6	3.4E+01	6.0E+01
LIRIC	2.3E-01	1.7	8.6E+01	1.2E+01
IMPAIR	2.7E+01	3.5E+01	3.7E+01	6.9E-01
INSPECT	No Data	No Data	No Data	No Data
IODE-IPSN	4.3E+01	4.9E+01	2.7	5.7

¹⁸ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h¹⁹ (continued)

Case 8B pH 9, 130°C, 10 ⁻⁵ M I ⁻ 1 kGy/h 10 ⁻³ M RH	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	6.0E-04	9.7E+01	5.7E-01	2.4
LIRIC	1.3E-03	9.3E+01	6.6	6.5E-02
IMPAIR	1.6E-03	9.2E+01	2.7E-03	7.6
INSPECT	No Data	No Data	No Data	No Data
IODE-IPSN	3.0E-03	1.0E+02	3.0E-03	1.4E-02

Case 8B pH 5, 130°C, 10 ⁻⁵ M I ⁻ 1 kGy/h 10 ⁻³ M RH	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	9.5E-03	4.4E+01	1.1E+01	4.5E+01
LIRIC	8.2E-02	2.5	4.0	9.3E+01
IMPAIR	2.0E+01	4.2E+01	3.4E+01	3.7
INSPECT	No Data	No Data	No Data	No Data
IODE-IPSN	2.8	7.8E+01	3.1	1.6E+01

Case 8C pH 9, 90°C, 10 ⁻⁵ M I ⁻ 1 kGy/h 10 ⁻⁵ M RH	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	3.6E-03	9.7E+01	1.1	2.0
LIRIC	6.7E-04	9.9E+01	1.4E-01	1.0
IMPAIR	4.9E-03	9.8E+01	6.8E-03	1.6
INSPECT	No Data	No Data	No Data	No Data
IODE-IPSN	3.0E-03	1.0E+02	1.0E-02	3.0E-02

¹⁹ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.

APPENDIX B: SELECTED MASS BALANCES AT 75 h²⁰ (concluded)

Case 8C pH 5, 90°C, 10 ⁻⁵ M I ⁻ 1 kGy/h 10 ⁻⁵ M RH	% Gas	% Aqueous	% Surface (g)	% Surface (aq)
IMOD	2.6E-02	7.4E+01	9.3	1.7E+01
LIRIC	8.2E-02	2.5	4.0	9.3E+01
IMPAIR	2.9E+01	3.0E+01	4.0E+01	6.0E-01
INSPECT	No Data	No Data	No Data	No Data
IODE-IPSN	2.3	4.7	3.0E+01	6.3E+01
IODE-NRIR	4.4E-02	3.7E+01	2.0E+01	4.3E+01

²⁰ Note that IMPAIR gas-phase percentages include IO₃⁻ aerosol.