1 **Secondary Organic Aerosol Formation via Multiphase Reaction of**
2 **Hydrocarbons in Urban Atmosphere Using the CAMx Model**
3 **Integrated with the UNIPAR model**

4
5 Zechen Yu¹, Myoseon Jang¹, Soontae Kim², Kyuwon Son², Azad Madhu¹, Sanghee Han¹, and Jinsoo
6 Park³

7 ¹ P.O.Box 116450, Department of Environmental Engineering Sciences, Engineering School of Sustainable
8 Infrastructure and Environment, University of Florida, Gainesville, FL, USA.

9 ² Department of Environmental and Safety Engineering, Ajou University, Suwon, South Korea.

10 ³ Air Quality Research Division, National Institute of Environmental Research, Environmental Research
11 Complex, Incheon, South Korea.

12 *Correspondence to:* Myoseon Jang (mjang@ufl.com)

13 Number of sections: 5

14 Number of tables: 8

15 Number of figures: 8

16

Section S1: SOA prediction with the UNIPAR model

The mass-based stoichiometric coefficient (α_i) of each lumping species i can be calculated based the variables listed in Table S3. In UNIPAR model, SOA formation is estimated by both the partitioning process and aerosol-phase heterogeneous reactions. The detailed parameters of UNIPAR model has been described in previous studies (Im et al., 2014;Beardsley and Jang, 2016;Zhou et al., 2019;Han and Jang, 2020;Yu et al., 2021). Briefly, the gaseous SOA products predicted by explicit gas mechanisms are distributed into both inorganic phase and organic phase through multiphase partitioning. The partitioning coefficient of each lumping species in inorganic phase ($K_{in,i}$, $\text{m}^3 \mu\text{g}^{-1}$) and in organic phase ($K_{or,i}$, $\text{m}^3 \mu\text{g}^{-1}$) are calculated as follows,

$$K_{in,i} = \frac{7.501 RT}{10^9 MW_{in} \gamma_{in,i} p_{l,i}^0}, \quad (\text{S1})$$

$$K_{or,i} = \frac{7.501 RT}{10^9 MW_{or} \gamma_{or,i} p_{l,i}^0} \quad (\text{S2})$$

where R is the ideal gas constant, T (K) is temperature, MW (g mol^{-1}) is the molecular weight of medium, γ is the activity coefficient of the species i in the medium, and p (mmHg) is the liquid vapor pressure of species i . The γ_{or} value is assumed to be unity. The γ_{in} value is estimated based on a semiempirically derived regression equation which is obtained by fitting the equation to Aerosol Inorganic-Organic Mixtures Functional groups Activity Coefficient (AIOMFAC)-predicted γ (Zuend et al., 2011) in the presence of organics, ammonium, sulfate, and nitrate as follows,

$$\gamma_{in,i} = e^{0.037 MW_i - 2.998 \ln(O:C_i) - 0.970 HB_i + 12.19 f_{anion} - 1.725 f_{nitrate} - 8.043 RH} \quad (\text{S3})$$

where RH is relative humidity (0-1), f_{anion} and $f_{nitrate}$ are the inorganic composition parameters and can be calculated as,

$$f_{anion} = \frac{n(NO_3^-) + 2 \times n(SO_4^{2-})}{n(NO_3^-) + 2 \times n(SO_4^{2-}) + n(NH_4^+)}. \quad (\text{S4})$$

and

$$f_{nitrate} = \frac{n(NO_3^-)}{n(NO_3^-) + n(SO_4^{2-})}. \quad (\text{S5})$$

The averaged molecular weight (MW), the hydrogen bonding parameter (HB), and the oxygen to carbon ratio ($O:C$) of the lumping species are shown in Table S4-S6, respectively.

For heterogeneous reactions, the kinetic equations for oligomerization in organic phase and salted aqueous phase were discussed in the previous studies (Zhou et al., 2019; Yu et al., 2021; Han and Jang, 2021). The organic-phase reaction rate constant, $k_{o,i}$ (L mol⁻¹ s⁻¹), and inorganic-phase rate constant, $k_{AC,i}$ (L mol⁻¹ s⁻¹), are semiempirically derived by using various model compounds in the flow tube reactor (Jang et al., 2005). $k_{AC,i}$ is estimated as follows,

$$k_{AC,i} = 10^{0.95R_i + 0.25 pK_{BH^+}_i + 1.0 \cdot X + \log(a_w[H^+]) - 2.58} \quad (S6)$$

where R_i is the reactivity scale of the lumping species (Table S7), pK_{BH} is the basicity constant (Table S8), X is the excess acidity, a_w is the water activity and $[H^+]$ is concentration of protons.

For the highly reactive lumping species of VF, F, and M groups, $k_{o,i}$ are estimated as follows (Han and Jang, 2021),

$$k_{o,i} = 10^{0.95R_i + 0.25 pK_{BH^+}_i + 1.2 \times \left(1 - \frac{1}{1 + e^{0.005 \times (300 - MW_o)}}\right) + \frac{2.2}{1 + e^{6 \times (0.75 - O:C)}} - 6.3} + 1.1 \quad (S7)$$

For the lumping species of S, P and MA groups, $k_{o,i}$ are estimated as follows,

$$k_{o,i} = 10^{0.95R_i + 0.25 pK_{BH^+}_i + 1.2 \times \left(1 - \frac{1}{1 + e^{0.005 \times (300 - MW_o)}}\right) + \frac{2.2}{1 + e^{6 \times (0.75 - O:C)}} - 6.3} \quad (S8)$$

57 **Table S1.** Computation test for CAMx-UNIPAR and CAMx-SOAP for the KORUS-AQ case

Simulation index	Domain 1	Domain 2	MPI x OMP	1-Day simulation
CAMx	EA-27km	N/A	4x4	22.7 min
CAMx-UNIPAR	EA-27km	N/A	4x4	54.1 min
CAMx	EA-27km	SK-9km	6x4	36.3 min
CAMx-UNIPAR	EA-27km	SK-9km	6x4	74.6 min
CAMx	EA-27km	SK-9km	6x6	18.4 min
CAMx-UNIPAR	EA-27km	SK-9km	8x8	54.5 min

59   **Section S2: Measurements and predictions at four different observation sites**

60
61   **Figure S1.** Time profiles of observed and predicted sulfate concentrations at (a) Bulkwang, (b) Olympic
62   Park, (c) Daejeon, and (d) Gwangju supersites.

63

Figure S2. Time profiles of observed and predicted nitrate concentrations at (a) Bulkwang, (b) Olympic Park, (c) Daejeon, and (d) Gwangju supersites.

Figure S3. Time profiles of observed and predicted ammonium ion concentrations at (a) Bulkwang, (b) Olympic Park, (c) Daejeon, and (d) Gwangju supersites.

Figure S4. Time profiles of observed and predicted concentrations of (a) 8-hour averaged O₃, (b) 8-hour averaged NO_x, and (c) 8-hour averaged SO₂ at the Olympic Park supersite.

Figure S5. Time profiles of temperature at (a) Bulkwang, (b) Olympic Park, (c) Daejeon, and (d) Gwangju supersites.

Figure S6. Time profiles of relative humidity (RH), the predicted efflorescence relative humidity (ERH), and aerosol phase state (wet and dry) at (a) Bulkwang, (b) Olympic Park, (c) Daejeon, and (d) Gwangju supersites.

Section S3: Statistic analysis for predictions vs. observations

The statistic parameters analyzed for the relation between predictions and observations include Mean bias error (MBE), the Pearson correlation coefficient (PCC), the mean fractional bias (MFB), and mean fractional error (MFE). The detailed calculation of each parameter is listed in Table S2.

Table S2. Description of statistic parameters used in this study.

Name	Definition ^a
Observation mean (M_{obs})	$M_{obs} = \frac{1}{N} \sum_{i=1}^N O_i$
Prediction mean (M_{pre})	$M_{pre} = \frac{1}{N} \sum_{i=1}^N Pre_i$
Mean bias error (MBE)	$MBE = \frac{1}{N} \sum_{i=1}^N (Pre_i - O_i)$
Pearson correlation coefficient (PCC)	$PCC = \frac{\sum_{i=1}^N (Pre_i - M_{pre}) \cdot (O_i - M_{obs})}{\sqrt{\sum_{i=1}^N (Pre_i - M_{pre})^2} \cdot \sqrt{\sum_{i=1}^N (O_i - M_{obs})^2}}$
mean fractional bias (MFB)	$MFB = \frac{1}{N} \sum_{i=1}^N \frac{2 \cdot (Pre_i - O_i)}{Pre_i + O_i}$
mean fractional error (MFE)	$MFE = \frac{1}{N} \sum_{i=1}^N \frac{2 \cdot Pre_i - O_i }{Pre_i + O_i}$

^a O_i and Pre_i represent the observation and prediction, respectively.

Figure S7. The observation of hourly averaged OM concentrations vs. CAMx-UNIPAR simulation results at the Bulkwang supersite for wet periods (a) and dry periods (b); and the results at the Olympic Park supersite for wet periods (c), and dry periods (d). Terms mean_x and mean_y are the averaged OM concentration of observations and predictions, respectively. MBE is the estimated mean bias error. PCC is the Pearson correlation coefficient. MFB and MFE are the mean fractional bias and mean fractional error, respectively.

Section S4: Spatial distribution of OM concentrations

Figure S8. Spatial distribution of episode-averaged concentrations over the East Asian (EA) domain for (a) total OM; (b) primary organic matter (POM); (c) heterogeneously formed aromatic SOA (OMH-ar); (d) partitioned aromatic SOA (OMP-ar); (e) heterogeneously formed terpene SOA (OMH-te); (f) partitioned terpene SOA (OMP-te); (g) heterogeneously formed isoprene SOA (OMH-is); and (h) partitioned isoprene SOA (OMP-is).

113 **Section S5: Model parameters used in CAMx-UNIPAR**

114 **Table S3.** Stoichiometric coefficient array of oxygenated products for UNIPAR module

Precursor: Benzene	NO _x level: Low NO _x	Aging stats: Fresh		
Lumped Species	A ^a	B ^a	C ^a	D ^a
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	-1.62E-05	1.43E-03	-3.75E-02	3.52E-01
4VF	5.07E-06	-4.24E-04	1.09E-02	-4.13E-02
5VF	-9.21E-08	4.36E-06	3.09E-05	1.58E-04
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	1.85E-05	-1.51E-03	3.93E-02	-2.12E-01
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-3.90E-08	3.67E-06	-8.34E-05	8.08E-04
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	1.45E-05	-1.20E-03	3.17E-02	-1.02E-01
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	4.84E-07	-4.49E-05	1.29E-03	-6.91E-03
5M	-1.73E-08	2.10E-06	-3.34E-05	4.11E-04
6M	-1.58E-06	1.33E-04	-3.06E-03	3.74E-02
7M	-1.59E-07	1.31E-05	-3.32E-04	2.89E-03
8M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-4.02E-07	3.29E-05	-8.32E-04	7.11E-03
5S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6S	-9.50E-07	7.74E-05	-1.94E-03	2.80E-02
7S	-8.99E-07	7.35E-05	-1.84E-03	1.96E-02
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6P	-7.34E-06	5.97E-04	-1.48E-02	1.96E-01
7P	-1.32E-05	1.08E-03	-2.82E-02	2.81E-01
8P	2.30E-05	-1.87E-03	4.67E-02	3.24E-01
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	6.25E-06	-5.14E-04	1.37E-02	1.46E-01

115 ^a The stoichiometric coefficient is calculated by $\alpha = A \times (VOC:NO_x)^3 +$
116 $B \times (VOC:NO_x)^2 + C \times (VOC:NO_x) + D$, where VOC:NO_x is the ratio of
117 total non-methane hydrocarbons to NO_x ratio (ppbC ppb⁻¹).

Precursor: Toluene NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	6.87E-08	-7.11E-06	2.15E-04	-5.89E-04
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-1.54E-07	1.57E-05	-3.67E-04	3.05E-03
6VF	-3.91E-08	6.62E-06	-1.72E-04	1.49E-03
7VF	2.65E-07	-2.81E-05	8.03E-04	7.40E-03
8VF	-1.33E-08	2.28E-06	-1.71E-04	1.97E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-5.37E-07	5.15E-05	-1.10E-03	1.34E-02
4F	-2.35E-07	2.93E-05	-6.95E-04	6.13E-03
5F	-7.60E-08	6.65E-06	-1.43E-04	9.38E-04
6F	1.44E-07	-1.89E-05	7.96E-04	2.69E-03
7F	1.21E-06	-1.25E-04	3.14E-03	6.33E-02
8F	2.47E-06	-2.44E-04	6.15E-03	3.42E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	4.84E-07	-5.25E-05	1.67E-03	-7.22E-03
4M	-1.81E-07	-3.78E-07	6.41E-04	1.38E-02
5M	2.78E-07	-3.36E-05	1.31E-03	3.16E-03
6M	5.05E-07	-9.49E-05	4.18E-03	2.68E-02
7M	9.01E-07	-9.08E-05	1.76E-03	5.30E-02
8M	1.27E-06	-1.26E-04	2.91E-03	8.34E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-2.84E-08	2.56E-06	-5.57E-05	3.59E-04
3S	-1.34E-08	1.44E-06	-3.45E-05	2.39E-04
4S	1.22E-07	-1.68E-05	7.28E-04	-1.62E-03
5S	-1.76E-06	2.24E-04	-5.74E-03	7.71E-02
6S	1.55E-06	-1.15E-04	3.94E-03	4.27E-02
7S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-2.35E-07	1.92E-05	-4.05E-04	2.56E-03
2P	-5.77E-07	5.43E-05	-1.20E-03	7.79E-03
3P	-4.69E-07	4.06E-05	-9.53E-05	7.87E-02
4P	-6.81E-06	6.54E-04	-1.55E-02	1.74E-01
5P	9.30E-07	-1.39E-04	5.98E-03	3.19E-02
6P	-8.50E-07	1.05E-04	-4.45E-03	1.09E-01
7P	-1.90E-06	2.09E-04	-7.09E-03	1.92E-01
8P	2.43E-07	-2.30E-05	-1.24E-03	1.47E-01
1MA	-1.47E-07	1.66E-05	-3.95E-04	2.70E-03
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	4.01E-06	-4.13E-04	1.20E-02	4.90E-02
GLY	3.41E-06	-3.44E-04	9.28E-03	1.78E-01

Precursor: o-Xylene NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	1.11E-07	-1.46E-05	5.82E-04	-2.22E-03
3VF	-1.60E-07	1.37E-05	-2.97E-04	1.12E-02
4VF	-1.51E-07	1.38E-05	-3.31E-04	3.55E-03
5VF	-1.12E-07	1.07E-05	-3.19E-04	5.34E-03
6VF	-4.17E-08	3.86E-06	-1.18E-04	2.07E-03
7VF	4.48E-06	-3.98E-04	1.04E-02	1.02E-01
8VF	-3.60E-07	3.31E-05	-8.26E-04	2.94E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	3.59E-07	-7.74E-05	4.42E-03	-1.08E-02
5F	-3.38E-07	2.31E-05	-2.50E-04	5.21E-03
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	2.40E-07	-2.55E-05	6.93E-04	1.39E-02
8F	1.10E-06	-1.01E-04	2.63E-03	9.03E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-1.87E-07	1.30E-05	-2.11E-04	3.41E-03
4M	-1.53E-07	1.46E-05	-3.61E-04	2.66E-03
5M	4.45E-08	-8.88E-06	4.47E-04	-8.34E-04
6M	-3.32E-07	4.92E-06	1.37E-03	3.66E-03
7M	5.14E-07	-5.42E-05	1.53E-03	7.76E-02
8M	2.18E-06	-1.93E-04	4.61E-03	4.05E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-4.23E-08	4.01E-06	-9.94E-05	7.34E-04
3S	-2.20E-08	2.08E-06	-5.20E-05	3.87E-04
4S	-6.37E-09	6.26E-07	-1.56E-05	1.15E-04
5S	1.14E-07	-1.31E-05	4.22E-04	2.60E-02
6S	-7.94E-08	-3.26E-05	3.19E-03	5.73E-03
7S	-1.67E-07	1.00E-05	-1.35E-04	1.31E-02
8S	1.03E-06	-1.04E-04	2.91E-03	1.22E-01
1P	-5.51E-08	4.93E-06	-1.22E-04	9.07E-04
2P	-2.73E-07	2.60E-05	-6.51E-04	4.84E-03
3P	-6.35E-07	3.60E-05	-1.34E-04	5.80E-02
4P	-7.97E-07	1.06E-04	-2.62E-03	1.03E-01
5P	-1.18E-06	7.95E-05	-9.47E-04	5.77E-02
6P	-3.70E-07	3.64E-05	-1.02E-03	2.16E-02
7P	1.88E-06	-1.19E-04	5.96E-04	1.74E-01
8P	1.70E-06	-1.48E-04	3.74E-03	9.30E-02
1MA	-5.74E-08	5.30E-06	-1.31E-04	9.74E-04
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	3.18E-06	-3.01E-04	8.00E-03	6.15E-02
GLY	3.57E-07	-4.46E-05	1.40E-03	6.18E-02

Precursor: m-Xylene NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-1.11E-08	1.54E-06	-5.43E-05	7.70E-04
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-1.99E-07	1.62E-05	-5.27E-04	3.16E-02
8VF	-2.52E-07	2.42E-05	-7.40E-04	3.95E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-2.77E-07	3.24E-05	-9.01E-04	3.19E-02
4F	-5.67E-08	7.99E-06	-2.45E-04	4.64E-03
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-7.13E-08	3.53E-06	7.00E-05	4.08E-03
7F	1.14E-06	-1.53E-04	5.89E-03	1.93E-01
8F	5.72E-07	-7.52E-05	2.38E-03	3.40E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-3.16E-08	2.41E-06	-4.81E-05	1.03E-03
4M	-2.31E-07	-1.33E-06	1.51E-03	9.83E-03
5M	4.02E-10	7.36E-08	-2.63E-06	1.43E-04
6M	-1.36E-07	5.29E-06	4.69E-04	5.32E-03
7M	-4.84E-07	3.90E-05	-1.14E-03	7.82E-02
8M	7.15E-07	-9.35E-05	2.80E-03	6.24E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-7.29E-09	2.89E-07	9.37E-06	4.19E-04
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5S	-1.69E-07	2.58E-05	-6.41E-04	3.62E-02
6S	-6.21E-07	3.15E-05	1.06E-03	3.94E-02
7S	-6.06E-08	5.01E-06	-1.41E-04	7.59E-03
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-3.33E-09	3.66E-07	-8.46E-06	5.55E-05
2P	-7.44E-08	1.38E-05	-3.46E-04	2.37E-03
3P	-4.89E-07	4.15E-05	-1.01E-03	3.57E-02
4P	2.42E-08	1.58E-05	2.41E-04	8.51E-02
5P	-3.89E-07	3.12E-05	-6.29E-04	3.41E-02
6P	-2.93E-07	4.37E-05	-2.01E-03	4.72E-02
7P	3.19E-07	-3.66E-05	5.40E-04	2.77E-01
8P	-1.52E-07	1.75E-05	-4.92E-04	1.35E-02
1MA	-1.74E-09	2.63E-07	-5.99E-06	3.73E-05
2MA	-2.06E-10	2.66E-07	-7.35E-06	5.29E-05
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	2.33E-07	-8.70E-05	2.92E-03	2.22E-01
GLY	-8.13E-08	-1.79E-06	1.07E-04	5.80E-02

Precursor: p-Xylene NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-3.70E-06	3.32E-04	-9.14E-03	1.53E-01
8VF	-1.31E-06	1.14E-04	-2.47E-03	3.58E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-8.40E-07	7.52E-05	-1.92E-03	2.23E-02
4F	-1.43E-07	1.14E-05	-2.98E-04	1.09E-02
5F	5.00E-08	-4.69E-06	1.37E-04	-5.67E-04
6F	-6.20E-07	6.27E-05	-2.14E-03	3.61E-02
7F	-3.02E-06	2.67E-04	-6.54E-03	6.36E-02
8F	-8.18E-07	7.27E-05	-1.86E-03	1.79E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-7.03E-07	6.93E-05	-2.64E-03	6.26E-02
5M	-1.07E-08	1.22E-06	-4.38E-05	9.25E-04
6M	-1.61E-06	1.34E-04	-2.81E-03	4.29E-02
7M	-3.02E-06	2.76E-04	-7.75E-03	1.68E-01
8M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	4.58E-09	-2.91E-07	-1.46E-05	1.63E-03
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	7.06E-07	-7.08E-05	2.38E-03	-3.64E-03
5S	-1.57E-06	1.90E-04	-8.23E-03	1.95E-01
6S	-1.08E-06	9.91E-05	-2.82E-03	3.96E-02
7S	-1.22E-07	9.34E-06	-2.53E-04	7.17E-03
8S	-1.11E-05	9.78E-04	-2.29E-02	2.45E-01
1P	1.76E-06	-1.67E-04	4.66E-03	-2.85E-02
2P	-1.25E-07	7.62E-06	1.23E-04	1.72E-03
3P	-2.64E-06	2.37E-04	-5.66E-03	6.66E-02
4P	-2.86E-07	-2.42E-06	3.97E-03	2.26E-02
5P	-8.95E-07	9.68E-05	-3.95E-03	1.22E-01
6P	2.44E-06	-2.31E-04	6.75E-03	3.84E-03
7P	-4.23E-06	3.75E-04	-8.17E-03	9.04E-02
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	4.43E-08	-5.49E-06	2.24E-04	-1.39E-03
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-7.96E-06	7.20E-04	-1.96E-02	2.15E-01
GLY	-8.91E-06	8.03E-04	-2.12E-02	2.63E-01

Precursor: 123-TMB ^a NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	8.59E-08	-9.74E-06	3.35E-04	-3.01E-03
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	1.30E-06	-1.39E-04	4.19E-03	-1.41E-02
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	1.98E-06	-2.13E-04	6.48E-03	-2.72E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	1.24E-06	-1.41E-04	4.90E-03	-4.41E-02
3M	5.30E-07	-5.63E-05	1.69E-03	-7.12E-03
4M	1.01E-06	-1.13E-04	3.84E-03	-3.43E-02
5M	1.06E-06	-1.12E-04	3.45E-03	-2.57E-02
6M	-9.24E-06	9.87E-04	-3.04E-02	4.66E-01
7M	2.90E-06	-3.16E-04	9.48E-03	6.11E-02
8M	-9.68E-06	1.06E-03	-3.42E-02	4.02E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	3.42E-07	-3.63E-05	1.13E-03	-8.67E-03
4S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5S	6.30E-06	-7.05E-04	2.33E-02	-1.46E-01
6S	5.10E-06	-5.74E-04	1.89E-02	-9.50E-02
7S	1.14E-06	-1.22E-04	3.74E-03	-2.35E-02
8S	1.12E-06	-1.11E-04	2.37E-03	2.80E-01
1P	1.98E-07	-2.31E-05	8.34E-04	-7.62E-03
2P	-4.37E-07	4.60E-05	-1.54E-03	2.21E-02
3P	1.78E-06	-2.00E-04	6.77E-03	-6.05E-02
4P	-2.99E-06	2.84E-04	-5.81E-03	1.90E-01
5P	7.03E-06	-7.44E-04	2.29E-02	-1.65E-01
6P	-1.15E-06	1.28E-04	-4.10E-03	6.67E-02
7P	-4.33E-06	4.69E-04	-1.53E-02	2.32E-01
8P	-5.99E-06	6.43E-04	-2.03E-02	2.90E-01
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-2.72E-06	2.99E-04	-1.01E-02	1.91E-01
GLY	2.41E-08	-3.72E-06	-6.28E-05	4.59E-02

132 ^a “123-TMB” represents 1,2,3-trimethylbenzene.

Precursor: 124-TMB ^a NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	-1.62E-07	2.84E-05	-1.32E-03	5.05E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	4.75E-08	-3.17E-07	-1.11E-05	2.67E-04
3F	-4.18E-08	5.35E-06	-2.37E-04	8.75E-03
4F	7.85E-09	4.83E-07	-3.22E-05	7.78E-04
5F	-7.98E-08	1.16E-05	-4.88E-04	1.10E-02
6F	1.07E-06	-1.72E-04	7.40E-03	1.99E-01
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	9.43E-08	-1.85E-05	7.90E-04	7.87E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-9.05E-08	1.26E-05	-4.10E-04	3.05E-02
5M	-5.77E-08	7.54E-06	-2.51E-04	8.62E-03
6M	-4.16E-08	6.38E-06	-2.30E-04	9.87E-03
7M	-4.49E-07	5.94E-05	-2.55E-03	1.42E-01
8M	2.68E-07	-5.18E-05	2.22E-03	1.98E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	-2.97E-09	4.10E-07	-1.52E-05	2.60E-04
4S	3.31E-08	-5.89E-07	2.28E-06	1.03E-04
5S	-1.64E-07	2.75E-05	-1.28E-03	4.49E-02
6S	-7.04E-08	1.36E-05	-4.05E-04	3.10E-02
7S	-8.25E-08	1.10E-05	-4.78E-04	1.50E-02
8S	9.98E-08	-2.61E-05	8.46E-04	2.56E-01
1P	2.02E-08	-6.51E-07	7.93E-06	-6.17E-06
2P	-2.98E-08	3.68E-06	-1.46E-04	3.83E-03
3P	1.50E-08	-4.47E-07	5.62E-06	4.52E-06
4P	7.64E-07	-6.40E-05	2.51E-03	1.17E-01
5P	-4.89E-08	6.94E-06	-2.99E-04	8.33E-03
6P	7.34E-08	-5.10E-06	-1.04E-04	4.95E-02
7P	8.78E-08	-2.16E-05	8.20E-04	1.27E-01
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	1.94E-07	-6.93E-05	3.02E-03	1.45E-01
GLY	-4.54E-10	-3.27E-06	1.21E-04	3.14E-02

135 ^a “124-TMB” represents 1,2,4-trimethylbenzene.

Precursor: 135-TMB NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-2.47E-07	2.56E-05	-6.57E-04	5.06E-03
3F	-4.30E-08	5.17E-06	-2.15E-04	5.05E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	2.11E-06	-2.36E-04	7.67E-03	6.51E-02
7F	-3.51E-08	3.57E-06	-8.98E-05	6.85E-04
8F	-5.55E-07	6.46E-05	-2.14E-03	3.78E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-8.02E-09	8.36E-07	-2.17E-05	1.67E-04
4M	-1.54E-07	1.56E-05	-3.89E-04	3.12E-03
5M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7M	-9.59E-07	1.08E-04	-3.80E-03	9.51E-02
8M	4.82E-06	-5.28E-04	1.57E-02	8.49E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-1.27E-06	1.47E-04	-4.89E-03	8.07E-02
5S	-1.94E-07	2.13E-05	-5.68E-04	4.51E-03
6S	-5.28E-07	5.59E-05	-1.61E-03	2.27E-02
7S	-2.06E-07	2.44E-05	-9.67E-04	2.09E-02
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-2.10E-07	2.26E-05	-6.09E-04	4.77E-03
2P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3P	-3.34E-07	3.60E-05	-9.63E-04	7.55E-03
4P	-2.06E-06	2.22E-04	-4.27E-03	2.08E-01
5P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6P	-7.78E-07	9.57E-05	-3.32E-03	1.12E-01
7P	1.55E-06	-1.58E-04	4.34E-03	2.73E-01
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	3.57E-06	-3.81E-04	9.37E-03	3.30E-01
GLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00

139 ^a “135-TMB” represents 1,3,5-trimethylbenzene.

Precursor: Ethylbenzene NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	8.09E-08	-5.16E-06	1.07E-04	-6.63E-04
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-5.31E-08	3.69E-06	-8.82E-05	1.75E-03
6VF	9.83E-08	-7.49E-06	8.84E-05	9.87E-03
7VF	-3.36E-09	2.89E-07	-2.41E-06	-5.33E-06
8VF	-2.12E-07	1.61E-05	-3.64E-04	1.49E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	1.05E-07	-8.05E-06	8.05E-05	1.17E-02
3F	-8.36E-09	3.47E-06	2.62E-04	-3.32E-03
4F	-2.84E-07	2.36E-05	-3.71E-04	4.90E-03
5F	-3.44E-08	2.09E-06	-3.29E-06	-1.07E-04
6F	2.24E-06	-1.56E-04	3.28E-03	2.24E-02
7F	9.69E-07	-7.35E-05	7.39E-04	7.80E-02
8F	1.63E-06	-1.23E-04	2.43E-03	1.61E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	-4.19E-08	3.10E-06	-5.32E-05	2.89E-04
3M	-6.51E-07	2.98E-05	-2.52E-04	1.40E-02
4M	1.58E-06	-1.00E-04	2.23E-03	-1.51E-02
5M	-2.66E-07	1.79E-05	-2.84E-04	1.72E-03
6M	3.58E-06	-2.26E-04	4.67E-03	-3.00E-02
7M	4.52E-07	-3.93E-05	7.03E-04	5.06E-02
8M	8.10E-06	-6.35E-04	1.30E-02	1.55E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	2.74E-07	1.45E-05	8.48E-04	1.68E-02
5S	1.03E-05	-6.71E-04	1.43E-02	-7.64E-02
6S	-4.06E-08	2.91E-06	-9.05E-05	6.66E-03
7S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-5.81E-07	3.87E-05	-4.36E-04	9.84E-04
2P	-5.72E-07	3.60E-05	-4.79E-04	2.35E-03
3P	-1.09E-06	1.10E-04	-3.08E-03	1.13E-01
4P	9.96E-07	-5.14E-05	3.66E-03	1.05E-02
5P	1.62E-06	-1.09E-04	2.81E-03	6.20E-03
6P	-4.10E-07	3.45E-05	-4.21E-04	1.11E-02
7P	-9.34E-06	6.63E-04	-1.60E-02	4.28E-01
8P	-1.19E-05	8.09E-04	-1.55E-02	2.89E-01
1MA	-1.80E-07	1.31E-05	-1.67E-04	5.84E-04
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	5.32E-07	-6.40E-05	1.08E-03	2.17E-01

Precursor: Propylbenzene NO_x level: Low NO_x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	2.41E-08	-1.66E-06	4.72E-05	-4.07E-04
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	1.97E-07	-1.80E-05	5.67E-04	-3.76E-03
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	-1.19E-07	1.02E-05	-2.72E-04	5.09E-03
7VF	1.84E-07	-1.64E-05	4.74E-04	-3.33E-03
8VF	-5.09E-09	8.23E-07	-2.89E-06	4.39E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	9.34E-09	-1.80E-06	1.42E-04	2.61E-03
3F	2.19E-07	-1.95E-05	6.24E-04	-4.16E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	2.30E-08	-2.30E-06	8.66E-05	-7.96E-04
6F	-2.79E-06	2.36E-04	-6.39E-03	1.33E-01
7F	-2.88E-07	2.31E-05	-8.28E-04	3.90E-02
8F	-1.61E-06	1.34E-04	-3.53E-03	5.33E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	2.01E-08	-1.89E-06	6.14E-05	-5.31E-04
3M	3.49E-06	-3.21E-04	9.13E-03	-6.19E-02
4M	1.07E-07	-1.02E-05	3.31E-04	-2.41E-03
5M	1.84E-07	-1.77E-05	6.92E-04	-6.20E-03
6M	2.64E-07	-2.45E-05	8.43E-04	-7.19E-03
7M	-3.05E-06	2.45E-04	-6.38E-03	1.21E-01
8M	-1.66E-06	1.00E-04	-1.75E-03	1.58E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	2.51E-08	-2.21E-06	6.63E-05	-5.45E-04
3S	8.00E-08	-7.29E-06	2.18E-04	-1.77E-03
4S	1.32E-06	-1.19E-04	4.72E-03	-1.90E-02
5S	1.67E-06	-1.62E-04	4.96E-03	-2.47E-02
6S	5.77E-08	-5.25E-06	1.40E-04	4.68E-03
7S	-3.06E-07	2.40E-05	-6.67E-04	4.96E-02
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	8.93E-07	-8.54E-05	2.81E-03	-2.47E-02
2P	7.31E-07	-5.30E-05	1.11E-03	8.07E-02
3P	-1.37E-06	9.88E-05	-7.29E-05	2.99E-02
4P	-4.93E-07	4.97E-05	-1.21E-03	1.58E-02
5P	1.67E-07	-1.52E-05	4.23E-04	-3.11E-03
6P	-7.32E-06	6.53E-04	-1.76E-02	2.53E-01
7P	-1.85E-06	1.69E-04	-5.10E-03	2.67E-01
8P	5.43E-06	-4.83E-04	1.28E-02	-9.61E-03
1MA	2.98E-07	-2.70E-05	8.30E-04	-7.04E-03
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	4.07E-07	-6.35E-05	2.07E-03	1.69E-01

Precursor: Terpene	NO _x level: Low NO _x		Aging stats: Fresh	
Lumped Species	A	B	C	D
1VF	-1.25E-07	9.33E-06	-6.15E-05	2.75E-05
2VF	-1.63E-10	-1.74E-08	2.01E-06	-1.27E-05
3VF	7.41E-08	-6.44E-06	1.40E-04	-6.48E-05
4VF	-1.77E-09	4.96E-08	4.85E-06	-3.40E-05
5VF	6.08E-08	-7.17E-06	2.45E-04	5.53E-03
6VF	4.10E-09	-3.24E-07	4.87E-06	9.13E-05
7VF	9.10E-08	-7.97E-06	2.02E-04	6.39E-05
8VF	-1.20E-08	7.30E-07	2.30E-06	-2.69E-05
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-9.71E-09	1.04E-06	2.85E-06	8.45E-06
5F	-6.16E-08	4.90E-06	-4.75E-05	6.01E-04
6F	-2.29E-08	1.68E-06	-1.05E-05	4.15E-04
7F	1.86E-07	-1.49E-05	1.53E-04	1.38E-02
8F	1.32E-09	-6.58E-08	3.68E-06	6.51E-05
1M	-7.28E-07	6.14E-05	-7.32E-04	2.44E-03
2M	3.02E-07	-2.90E-05	8.51E-04	-2.53E-03
3M	-8.02E-07	6.28E-05	-4.52E-04	4.82E-04
4M	-1.77E-06	1.34E-04	-5.57E-04	4.20E-02
5M	1.79E-06	-1.83E-04	5.50E-03	3.51E-02
6M	1.37E-06	-8.33E-05	-1.90E-03	4.68E-01
7M	8.67E-07	-6.62E-05	6.31E-04	6.38E-02
8M	-3.68E-08	2.72E-06	-1.12E-05	-2.19E-05
1S	-2.33E-07	8.99E-06	6.79E-04	2.84E-03

Lumped Species	A	B	C	D
2S	2.27E-07	-2.50E-05	1.04E-03	3.71E-03
3S	1.06E-06	-1.08E-04	3.33E-03	6.34E-03
4S	4.62E-06	-4.27E-04	1.11E-02	4.03E-02
5S	2.30E-06	-1.93E-04	3.71E-03	4.09E-02
6S	-1.08E-06	7.90E-05	-4.63E-04	9.47E-03
7S	-9.86E-08	6.17E-06	-8.14E-06	1.55E-03
8S	-1.66E-10	-1.20E-09	1.23E-06	-7.86E-06
1P	-2.22E-07	1.67E-05	-1.15E-04	2.47E-03
2P	6.43E-07	-6.84E-05	2.28E-03	-6.95E-03
3P	-3.70E-08	2.34E-06	2.02E-05	-2.10E-04
4P	-5.36E-07	4.61E-05	-7.33E-04	1.19E-02
5P	-1.48E-06	1.24E-04	-2.36E-03	1.59E-01
6P	2.78E-08	-2.34E-06	4.13E-05	9.63E-04
7P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8P	1.77E-06	-1.54E-04	3.40E-03	3.69E-03
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	4.84E-09	-1.65E-07	-2.14E-05	1.46E-03
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	-3.10E-09	1.24E-07	8.61E-06	-5.64E-05
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-2.92E-08	3.52E-06	-1.50E-04	2.57E-03
GLY	3.72E-08	-3.37E-06	8.99E-05	-2.77E-05

Precursor: Isoprene NO _x level: Low NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	2.09E-10	-1.91E-08	5.24E-07	-3.41E-06
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	2.25E-13	-2.09E-11	5.96E-10	-4.21E-09
7VF	1.04E-06	-9.24E-05	2.29E-03	-4.93E-03
8VF	2.09E-08	-1.86E-06	4.60E-05	-2.82E-05
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	3.52E-08	-3.41E-06	1.05E-04	-3.05E-04
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-1.34E-07	1.62E-05	-6.64E-04	9.79E-03
7F	2.74E-07	-2.68E-05	8.42E-04	-2.77E-03
8F	-1.37E-08	1.08E-06	-2.17E-05	2.49E-04
1M	7.04E-09	-6.53E-07	1.90E-05	-1.12E-04
2M	2.25E-08	-2.14E-06	6.03E-05	-1.43E-04
3M	2.95E-07	-2.74E-05	7.58E-04	-3.44E-04
4M	3.76E-10	-1.81E-08	-4.36E-07	3.07E-05
5M	8.14E-08	-7.57E-06	2.23E-04	-1.42E-06
6M	-1.37E-07	4.34E-06	6.14E-04	6.92E-03
7M	-6.86E-07	5.46E-05	-1.07E-03	1.49E-02
8M	2.46E-07	1.37E-05	-2.83E-03	1.43E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-1.06E-13	1.14E-11	-3.93E-10	4.48E-09
3S	-8.40E-11	1.18E-08	-5.54E-07	9.49E-06
4S	5.61E-09	8.12E-08	-3.91E-05	1.14E-03
5S	3.36E-08	-2.88E-06	7.96E-05	1.56E-03
6S	5.06E-07	-4.39E-05	1.17E-03	1.74E-02
7S	2.27E-09	3.09E-06	-2.64E-04	8.49E-03
8S	5.91E-07	-5.41E-05	1.49E-03	1.14E-02
1P	1.89E-07	-1.79E-05	5.09E-04	-1.12E-03
2P	2.67E-07	-2.27E-05	4.74E-04	4.87E-03
3P	3.14E-08	-2.85E-06	7.30E-05	-1.80E-04
4P	-2.55E-08	2.09E-06	-4.22E-05	5.23E-04
5P	-1.21E-08	1.69E-06	-8.72E-05	1.90E-03
6P	-4.49E-07	4.52E-05	-1.45E-03	2.07E-02
7P	-2.08E-06	1.66E-04	-2.65E-03	3.47E-02
8P	-7.89E-07	1.06E-04	-4.70E-03	9.99E-02
1MA	6.47E-09	-6.00E-07	1.61E-05	-2.39E-05
2MA	1.03E-08	-9.70E-07	2.77E-05	-1.08E-04
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	-4.67E-10	3.86E-08	-6.91E-07	4.62E-06
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.35E-07	1.74E-05	-8.43E-04	2.14E-02
GLY	-4.19E-08	6.53E-06	-3.99E-04	1.23E-02
IEPOX	1.59E-06	-1.60E-04	5.50E-03	-3.23E-02

154 **Table S3. (Continued)**

Precursor: Benzene NO_x level: Low NO_x Aging stats: Aged				
Lumped Species	A^a	B^a	C^a	D^a
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	5.71E-05	-4.32E-03	1.02E-01	-5.19E-01
4VF	-1.07E-06	8.78E-05	-2.25E-03	2.02E-02
5VF	3.26E-07	-2.67E-05	6.82E-04	-2.98E-03
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-2.69E-06	2.19E-04	-5.61E-03	4.95E-02
8VF	7.87E-07	-6.41E-05	1.66E-03	-1.15E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	-9.67E-07	8.06E-05	-2.11E-03	1.77E-02
6F	-8.63E-07	7.20E-05	-1.93E-03	1.96E-02
7F	1.07E-06	-8.82E-05	2.37E-03	-1.74E-02
8F	-1.32E-05	1.07E-03	-2.76E-02	2.30E-01
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-3.24E-07	2.64E-05	-6.82E-04	5.83E-03
5M	-1.31E-06	1.08E-04	-2.82E-03	2.46E-02
6M	-1.36E-05	1.11E-03	-2.84E-02	2.51E-01
7M	-7.75E-05	6.30E-03	-1.61E-01	1.31E+00
8M	1.68E-06	-1.37E-04	3.57E-03	-2.57E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-1.31E-04	1.07E-02	-2.79E-01	2.43E+00
5S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6S	4.01E-06	-3.31E-04	8.84E-03	-6.19E-02
7S	-6.73E-07	5.38E-05	-1.30E-03	2.34E-02
8S	5.18E-08	-4.64E-06	1.83E-04	-1.62E-03
1P	3.79E-05	-3.12E-03	8.12E-02	-5.58E-01
2P	1.81E-07	-1.34E-05	3.08E-04	-2.07E-03
3P	4.75E-06	-3.90E-04	1.04E-02	-7.69E-02
4P	3.20E-07	-1.59E-05	6.46E-06	1.28E-02
5P	1.13E-05	-9.20E-04	2.43E-02	-1.77E-01
6P	1.18E-05	-1.09E-03	3.69E-02	-1.58E-01
7P	8.12E-07	-4.52E-05	2.09E-04	1.45E-01
8P	1.68E-05	-1.38E-03	3.66E-02	-2.22E-01
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	-2.67E-05	2.19E-03	-5.64E-02	5.36E-01

155 ^a The stoichiometric coefficient is calculated by $\alpha = A \times (VOC:NO_x)^3 +$
156 $B \times (VOC:NO_x)^2 + C \times (VOC:NO_x) + D$, where VOC:NO_x is the ratio of
157 total non-methane hydrocarbons to NO_x ratio (ppbC ppb⁻¹).

Precursor: Toluene NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	6.56E-08	-5.80E-06	1.32E-04	2.55E-05
6VF	4.61E-08	-4.93E-06	1.47E-04	-2.38E-04
7VF	3.61E-08	-2.90E-06	3.74E-05	1.10E-03
8VF	1.88E-07	-1.52E-05	2.36E-04	4.11E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	8.88E-08	-7.81E-06	1.68E-04	6.68E-04
4F	1.28E-07	-1.22E-05	2.98E-04	5.14E-04
5F	1.70E-08	-1.29E-06	1.85E-05	3.70E-04
6F	1.47E-07	-9.19E-06	-4.99E-05	8.25E-03
7F	2.24E-07	-1.95E-05	3.93E-04	2.65E-03
8F	4.52E-08	-3.77E-06	5.56E-05	1.24E-03
1M	1.76E-08	-1.20E-06	3.07E-05	-1.24E-04
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-3.48E-06	3.14E-04	-8.77E-03	1.14E-01
4M	9.82E-09	9.69E-08	-6.48E-05	2.07E-03
5M	6.34E-08	-5.89E-06	1.02E-04	1.89E-03
6M	7.70E-08	-3.54E-06	-1.18E-04	5.69E-03
7M	3.03E-08	3.12E-07	-2.67E-04	1.33E-02
8M	8.86E-07	-7.53E-05	1.44E-03	1.12E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	-7.52E-07	8.28E-05	-1.29E-03	1.20E-02
4S	-8.08E-08	1.03E-05	-5.58E-04	1.29E-02
5S	7.47E-07	-5.73E-05	6.35E-04	2.71E-02
6S	7.83E-07	-5.13E-05	-2.31E-05	3.66E-02
7S	-4.98E-08	5.72E-06	-2.49E-04	4.60E-03
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-2.73E-06	2.84E-04	-1.01E-02	1.33E-01
2P	-7.61E-08	2.15E-05	-6.92E-04	1.46E-02
3P	6.32E-06	-6.36E-04	1.97E-02	-1.08E-01
4P	8.07E-07	-5.06E-05	-2.42E-04	5.27E-02
5P	7.42E-07	-3.22E-05	-1.86E-03	1.01E-01
6P	-1.50E-06	7.91E-05	3.18E-03	1.16E-01
7P	1.01E-06	-7.84E-05	4.73E-04	6.50E-02
8P	-5.81E-07	3.95E-05	-6.53E-05	3.04E-02
1MA	-1.09E-06	1.22E-04	-2.81E-04	2.18E-02
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	3.10E-07	-2.92E-05	5.43E-04	1.02E-02
GLY	1.81E-06	-1.67E-04	3.55E-03	4.04E-02

Precursor: o-Xylene NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	1.53E-07	-1.50E-05	4.65E-04	-3.86E-03
4VF	2.20E-07	-2.16E-05	6.57E-04	-5.23E-03
5VF	2.24E-07	-2.17E-05	6.76E-04	-5.52E-03
6VF	1.83E-07	-1.77E-05	5.24E-04	-3.94E-03
7VF	1.42E-06	-1.40E-04	4.39E-03	-3.58E-02
8VF	1.16E-06	-1.13E-04	3.63E-03	-3.07E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	7.42E-07	-7.25E-05	2.24E-03	-1.84E-02
5F	1.14E-06	-1.13E-04	3.53E-03	-2.89E-02
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	5.07E-07	-5.07E-05	1.57E-03	-1.23E-02
8F	1.88E-07	-1.87E-05	5.84E-04	-4.77E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	7.71E-07	-1.20E-04	5.21E-03	-2.80E-02
4M	1.35E-07	-1.37E-05	4.50E-04	-3.53E-03
5M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6M	1.65E-06	-1.66E-04	5.89E-03	-5.06E-02
7M	4.16E-06	-4.17E-04	1.37E-02	-1.13E-01
8M	7.34E-07	-7.27E-05	2.26E-03	-1.83E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	1.55E-08	-1.39E-06	4.41E-05	-3.76E-04
3S	-7.56E-07	7.34E-05	-2.24E-03	2.57E-02
4S	3.90E-07	-4.31E-05	1.61E-03	-1.24E-02
5S	7.33E-07	-6.92E-05	1.97E-03	-1.05E-02
6S	7.90E-07	-8.02E-05	2.62E-03	-1.60E-02
7S	1.35E-06	-1.34E-04	3.85E-03	-8.69E-03
8S	7.03E-06	-6.88E-04	2.01E-02	-5.20E-02
1P	7.15E-07	-1.06E-04	4.33E-03	-3.11E-02
2P	-3.75E-07	3.34E-05	-9.18E-04	1.31E-02
3P	9.95E-07	-2.38E-05	-2.84E-04	5.94E-02
4P	7.22E-07	-5.71E-05	3.18E-03	1.75E-02
5P	4.98E-06	-4.91E-04	1.47E-02	-7.80E-02
6P	3.60E-07	-6.84E-05	3.08E-03	2.56E-02
7P	3.56E-06	-3.95E-04	1.43E-02	-2.74E-02
8P	1.59E-06	-1.56E-04	5.21E-03	-4.52E-02
1MA	3.94E-08	-4.93E-06	4.40E-04	-4.18E-03
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	1.63E-06	-1.59E-04	4.76E-03	-3.63E-02
GLY	4.74E-06	-4.65E-04	1.40E-02	-1.05E-01

Precursor: m-Xylene NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-2.73E-09	3.43E-07	-1.12E-05	1.75E-04
5VF	-1.73E-08	1.98E-06	-5.64E-05	7.47E-04
6VF	-9.97E-09	1.15E-06	-4.25E-05	6.99E-04
7VF	-1.34E-07	1.77E-05	-5.61E-04	8.68E-03
8VF	-2.26E-07	3.43E-05	-1.06E-03	1.58E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-9.93E-09	7.38E-06	-2.97E-04	5.24E-03
4F	-1.52E-07	2.43E-05	-7.78E-04	1.23E-02
5F	-5.96E-09	8.85E-07	-2.80E-05	4.77E-04
6F	-3.97E-07	4.31E-05	-1.34E-03	2.01E-02
7F	-1.60E-07	2.89E-05	-7.64E-04	1.10E-02
8F	-8.96E-09	1.22E-06	-4.22E-05	6.71E-04
1M	-2.52E-09	3.49E-07	-7.32E-06	1.01E-04
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-1.22E-06	9.88E-05	-2.18E-03	3.21E-02
4M	-2.86E-08	4.79E-06	-1.68E-04	2.60E-03
5M	-3.32E-08	3.92E-06	-1.55E-04	2.27E-03
6M	-2.19E-08	3.67E-06	-1.59E-04	2.41E-03
7M	-1.23E-06	1.24E-04	-3.36E-03	5.79E-02
8M	-2.12E-08	2.93E-06	-1.02E-04	1.60E-03
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-2.43E-08	3.65E-06	-9.50E-05	8.69E-04
3S	3.51E-07	-4.03E-05	1.35E-03	-5.85E-03
4S	-3.43E-08	3.68E-06	-1.37E-04	3.18E-03
5S	-4.65E-08	2.81E-05	-1.75E-03	6.02E-02
6S	-6.52E-08	2.84E-05	-9.91E-04	1.57E-02
7S	3.08E-08	-5.92E-07	-1.77E-04	1.89E-02
8S	-1.43E-08	1.84E-06	-9.29E-05	1.95E-03
1P	-7.59E-07	5.91E-05	-1.24E-03	1.81E-02
2P	4.03E-07	-3.61E-05	1.25E-03	-5.79E-03
3P	-8.22E-07	1.48E-04	-6.39E-03	1.07E-01
4P	8.41E-07	-6.90E-05	1.55E-03	3.44E-02
5P	3.62E-07	-5.06E-05	1.62E-03	3.83E-02
6P	-3.51E-07	7.67E-06	1.86E-03	4.55E-02
7P	-2.09E-07	-2.40E-06	2.56E-03	1.09E-01
8P	1.10E-08	6.69E-07	-3.43E-05	6.24E-04
1MA	-1.20E-07	1.24E-05	-2.29E-04	2.23E-03
2MA	1.91E-08	-8.34E-07	1.29E-05	-1.05E-05
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-5.20E-07	6.44E-05	-2.34E-03	3.91E-02
GLY	-1.39E-07	1.84E-05	-7.74E-04	1.65E-02

Precursor: p-Xylene NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	7.91E-07	-9.87E-05	4.27E-03	-2.51E-02
8VF	1.58E-07	-1.83E-05	9.27E-04	-7.10E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	5.08E-08	-5.29E-06	2.02E-04	-1.44E-03
4F	1.22E-07	-1.37E-05	5.06E-04	-3.19E-03
5F	1.93E-08	-1.91E-06	6.48E-05	-4.42E-04
6F	1.14E-07	-1.44E-05	5.93E-04	-2.71E-03
7F	3.24E-07	-3.49E-05	1.34E-03	-1.14E-02
8F	3.60E-08	-3.94E-06	1.42E-04	-8.67E-04
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-2.73E-07	2.09E-05	-2.37E-04	1.48E-02
5M	-3.25E-10	1.30E-08	-4.01E-07	1.72E-04
6M	1.11E-07	-1.33E-05	9.77E-04	-8.15E-03
7M	1.63E-06	-2.08E-04	8.91E-03	-5.32E-02
8M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-1.10E-08	6.77E-07	2.30E-05	-2.91E-04
3S	-4.05E-08	4.27E-06	-1.65E-04	2.91E-03
4S	2.94E-07	-3.37E-05	1.48E-03	-8.73E-03
5S	1.05E-06	-1.27E-04	4.53E-03	2.32E-02
6S	6.41E-08	-6.76E-06	3.32E-04	-2.42E-03
7S	1.89E-07	-1.80E-05	5.40E-04	-2.22E-03
8S	5.55E-07	-6.47E-05	3.28E-03	-2.57E-02
1P	4.28E-07	-4.22E-05	1.48E-03	-7.97E-03
2P	4.58E-08	-3.16E-06	1.56E-04	4.21E-04
3P	-6.19E-07	5.44E-05	-1.76E-03	6.51E-02
4P	2.85E-07	-2.66E-05	3.18E-03	-4.40E-03
5P	-2.12E-07	1.82E-06	2.76E-04	6.48E-02
6P	6.30E-07	-9.38E-05	4.43E-03	2.37E-02
7P	6.99E-08	5.16E-07	2.90E-04	9.86E-03
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	2.98E-08	-2.80E-06	1.24E-04	-9.56E-04
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	5.49E-07	-5.75E-05	1.87E-03	-4.23E-03
GLY	1.11E-06	-1.21E-04	4.26E-03	-1.94E-02

Precursor: 123-TMB ^a NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-4.28E-09	3.69E-07	-3.20E-06	1.72E-05
5VF	-1.49E-08	1.33E-06	-1.53E-05	9.26E-05
6VF	1.45E-09	-5.14E-07	3.83E-05	-1.70E-04
7VF	-2.11E-07	1.54E-05	6.03E-05	1.84E-03
8VF	-2.92E-09	6.01E-07	-3.97E-05	1.05E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	-2.86E-07	1.90E-05	2.65E-04	-1.03E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	-3.83E-07	3.88E-05	-7.14E-04	4.64E-03
3M	-3.77E-08	4.79E-06	-2.56E-04	1.18E-02
4M	8.48E-07	-1.23E-04	6.18E-03	-1.37E-02
5M	4.75E-07	-4.30E-05	6.57E-04	2.99E-02
6M	-7.42E-07	7.86E-05	-1.64E-03	1.14E-02
7M	-5.71E-07	3.94E-05	6.44E-04	3.51E-03
8M	-6.98E-08	6.53E-06	-1.03E-04	6.73E-04
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	1.12E-07	-1.13E-05	3.08E-04	4.71E-03
4S	1.41E-08	-1.52E-06	4.04E-05	6.62E-04
5S	-1.97E-06	2.05E-04	-4.29E-03	4.11E-02
6S	-5.25E-07	4.30E-05	-2.50E-04	8.31E-04
7S	1.87E-07	-2.17E-05	6.62E-04	1.08E-02
8S	1.48E-06	-1.51E-04	3.69E-03	3.46E-01
1P	-3.51E-08	2.53E-06	2.09E-05	6.26E-04
2P	2.34E-07	-1.85E-05	2.47E-04	1.30E-02
3P	-5.00E-07	3.82E-05	2.48E-04	2.48E-02
4P	-6.79E-07	7.90E-05	-1.99E-03	3.48E-02
5P	3.21E-07	-2.29E-05	-3.29E-04	5.40E-02
6P	1.64E-07	-3.22E-05	2.24E-03	-2.28E-03
7P	2.33E-06	-2.89E-04	1.23E-02	-1.68E-02
8P	-2.15E-07	2.40E-05	-5.35E-04	3.81E-03
1MA	-5.77E-09	7.53E-07	-1.15E-05	9.99E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	7.95E-08	-1.72E-05	1.03E-03	4.51E-03
GLY	2.15E-08	-5.89E-06	4.22E-04	3.58E-03

172 ^a “123-TMB” represents 1,2,3-trimethylbenzene.

Precursor: 124-TMB ^a NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	-1.61E-07	1.02E-05	-1.04E-06	2.17E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-3.16E-08	4.68E-07	9.45E-05	5.97E-03
3F	-4.85E-08	5.70E-06	-2.64E-04	7.13E-03
4F	2.64E-07	-3.06E-05	9.98E-04	1.70E-02
5F	-3.98E-07	5.18E-05	-2.37E-03	5.29E-02
6F	-1.83E-07	8.95E-06	2.41E-05	2.55E-02
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	-6.22E-10	8.53E-08	-1.55E-05	1.28E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-8.16E-08	9.52E-06	-4.51E-04	1.53E-02
5M	-2.08E-08	1.09E-06	2.20E-05	2.84E-03
6M	-9.44E-08	1.15E-05	-5.09E-04	1.01E-02
7M	-3.65E-08	1.11E-05	-1.12E-03	1.36E-01
8M	-2.97E-10	-3.96E-08	-2.44E-05	3.09E-03
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-4.80E-10	4.14E-08	1.49E-06	9.38E-05
3S	-6.51E-09	1.20E-06	-6.80E-05	2.20E-03
4S	8.07E-08	-1.12E-05	5.69E-04	1.15E-02
5S	-3.57E-07	4.53E-05	-1.87E-03	9.22E-02
6S	-8.20E-08	9.39E-06	-4.01E-04	1.44E-02
7S	1.80E-08	2.60E-06	-4.32E-04	2.78E-02
8S	2.04E-07	-1.29E-05	-6.08E-04	1.92E-01
1P	-1.16E-08	5.95E-07	2.15E-05	8.45E-04
2P	1.78E-08	5.87E-07	-1.82E-04	7.98E-03
3P	5.72E-08	-7.43E-06	3.43E-04	3.03E-03
4P	-5.29E-07	2.57E-05	1.85E-03	5.49E-02
5P	5.78E-08	1.66E-06	-4.73E-04	2.98E-02
6P	7.43E-07	-8.00E-05	3.02E-03	3.88E-02
7P	-7.74E-08	5.57E-07	3.48E-04	5.60E-03
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	-1.42E-10	-1.20E-08	2.95E-06	1.92E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-3.30E-07	4.79E-05	-2.74E-03	8.26E-02
GLY	-5.17E-08	7.76E-06	-5.18E-04	2.07E-02

175 ^a “124-TMB” represents 1,2,4-trimethylbenzene.

Precursor: 135-TMB NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	1.30E-07	-1.52E-05	4.55E-04	1.19E-02
3F	-4.27E-08	5.28E-06	-2.42E-04	5.78E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-5.77E-07	5.90E-05	-1.83E-03	2.46E-02
7F	-8.60E-09	7.30E-07	-1.54E-05	1.12E-03
8F	-2.26E-07	2.10E-05	-4.00E-04	3.41E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-7.23E-09	7.07E-07	-2.02E-05	4.16E-04
4M	-6.70E-08	7.64E-06	-3.41E-04	1.09E-02
5M	9.17E-08	-9.40E-06	2.81E-04	-8.64E-04
6M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7M	-1.33E-07	3.00E-05	-2.97E-03	2.11E-01
8M	-5.78E-07	6.18E-05	-2.09E-03	2.80E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-1.39E-06	1.27E-04	-1.69E-03	8.25E-02
5S	6.99E-07	-7.07E-05	1.97E-03	2.40E-03
6S	2.76E-07	-3.28E-05	1.47E-03	1.58E-02
7S	2.47E-06	-2.40E-04	6.10E-03	1.67E-02
8S	4.75E-08	-3.74E-06	2.84E-05	2.51E-03
1P	-1.43E-07	1.40E-05	-2.24E-04	4.78E-03
2P	2.16E-07	-2.22E-05	6.70E-04	-3.28E-03
3P	4.82E-06	-5.08E-04	1.57E-02	-1.23E-02
4P	-3.44E-06	3.46E-04	-8.62E-03	1.26E-01
5P	4.46E-08	-4.57E-06	1.37E-04	-5.21E-04
6P	7.44E-06	-7.59E-04	2.25E-02	2.00E-02
7P	-3.78E-06	3.81E-04	-9.81E-03	9.36E-02
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-3.93E-06	4.46E-04	-1.68E-02	2.59E-01
GLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00

179 ^a “135-TMB” represents 1,3,5-trimethylbenzene.

Precursor: Ethylbenzene NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-4.99E-08	3.88E-06	-9.41E-05	1.10E-03
6VF	-9.20E-08	6.90E-06	-1.62E-04	2.27E-03
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	-4.48E-07	3.33E-05	-7.21E-04	6.81E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-1.75E-07	1.09E-05	-1.56E-04	1.41E-03
4F	-3.52E-07	2.51E-05	-4.96E-04	4.46E-03
5F	-4.41E-08	3.20E-06	-6.21E-05	4.43E-04
6F	-3.07E-07	2.26E-05	-4.89E-04	5.60E-03
7F	-3.51E-07	2.70E-05	-6.53E-04	8.17E-03
8F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	-3.87E-08	2.22E-06	-9.42E-06	-7.51E-05
3M	3.85E-06	-2.69E-04	5.38E-03	-6.04E-03
4M	-5.08E-08	3.20E-06	-4.19E-05	4.01E-04
5M	-4.46E-08	2.93E-06	-5.17E-05	8.30E-04
6M	-4.27E-08	2.90E-06	-5.63E-05	7.56E-04
7M	-3.65E-07	2.94E-05	-7.00E-04	1.10E-02
8M	-1.44E-06	1.08E-04	-2.34E-03	3.34E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	1.69E-07	-9.87E-07	7.55E-06	2.18E-02
4S	-2.05E-06	1.48E-04	-3.19E-03	3.53E-02
5S	-1.25E-06	9.49E-05	-2.13E-03	2.11E-02
6S	-1.19E-07	9.00E-06	-2.09E-04	2.30E-03
7S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-1.08E-06	1.06E-04	-3.52E-03	4.59E-02
2P	1.01E-07	1.19E-06	-2.27E-04	1.24E-02
3P	6.92E-06	-6.29E-04	1.79E-02	-1.14E-01
4P	-1.69E-06	1.27E-04	-2.93E-03	3.56E-02
5P	-1.90E-06	2.60E-04	-1.06E-02	1.62E-01
6P	1.28E-06	-6.05E-05	3.80E-05	4.55E-02
7P	-7.61E-06	5.60E-04	-1.22E-02	2.79E-01
8P	-2.00E-05	1.79E-03	-5.70E-02	7.95E-01
1MA	1.11E-05	-7.75E-04	1.86E-02	-1.24E-01
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	-3.20E-06	2.56E-04	-6.06E-03	7.22E-02

Precursor: Propylbenzene NO_x level: Low NO_x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	-1.18E-07	1.07E-05	-2.71E-04	2.18E-03
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-1.99E-08	1.53E-06	-3.24E-05	7.66E-04
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-6.70E-09	3.27E-07	7.22E-06	2.86E-04
8VF	-1.50E-07	1.38E-05	-3.79E-04	4.32E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-8.75E-08	7.56E-06	-1.91E-04	1.76E-03
3F	-1.51E-07	1.34E-05	-3.43E-04	3.42E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-2.39E-07	1.95E-05	-4.70E-04	7.53E-03
7F	-2.43E-08	1.50E-06	-1.60E-05	9.67E-04
8F	3.48E-08	-3.13E-06	8.22E-05	-3.50E-04
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	-3.66E-08	3.13E-06	-7.84E-05	6.62E-04
3M	5.65E-07	-5.74E-05	1.57E-03	1.06E-02
4M	-6.56E-08	5.62E-06	-1.41E-04	1.60E-03
5M	-2.17E-07	1.91E-05	-5.01E-04	4.54E-03
6M	-1.01E-07	8.55E-06	-2.06E-04	2.21E-03
7M	3.33E-07	-3.10E-05	8.74E-04	-5.20E-03
8M	-6.52E-07	5.55E-05	-1.28E-03	1.81E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-3.43E-08	3.17E-06	-8.64E-05	8.60E-04
3S	6.50E-07	-5.60E-05	1.56E-03	8.29E-03
4S	-2.43E-06	2.18E-04	-5.86E-03	6.15E-02
5S	-1.30E-06	1.16E-04	-3.10E-03	3.55E-02
6S	-3.37E-08	5.09E-06	-1.43E-04	1.18E-02
7S	-9.26E-07	7.66E-05	-1.86E-03	3.74E-02
8S	-3.60E-08	3.34E-06	-9.58E-05	9.60E-04
1P	-4.57E-07	4.64E-05	-1.75E-03	3.37E-02
2P	8.05E-07	-1.17E-04	5.22E-03	-2.90E-02
3P	-2.09E-06	1.81E-04	-4.64E-03	4.12E-02
4P	9.51E-06	-8.09E-04	1.95E-02	-9.88E-02
5P	6.82E-08	1.68E-06	-5.59E-04	2.30E-02
6P	-5.57E-07	4.40E-05	-1.20E-03	3.92E-02
7P	-1.67E-06	1.20E-04	-1.91E-03	1.82E-01
8P	-8.92E-06	9.34E-04	-3.48E-02	6.17E-01
1MA	4.83E-08	-1.79E-05	1.62E-03	-1.27E-02
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	-2.67E-05	2.19E-03	-5.64E-02	5.36E-01

Precursor: Terpene	NO _x level: Low NO _x		Aging stats: Aged	
Lumped Species	A	B	C	D
1VF	-1.25E-07	9.33E-06	-6.15E-05	2.75E-05
2VF	-1.63E-10	-1.74E-08	2.01E-06	-1.27E-05
3VF	7.41E-08	-6.44E-06	1.40E-04	-6.48E-05
4VF	-1.77E-09	4.96E-08	4.85E-06	-3.40E-05
5VF	6.08E-08	-7.17E-06	2.45E-04	5.53E-03
6VF	4.10E-09	-3.24E-07	4.87E-06	9.13E-05
7VF	9.10E-08	-7.97E-06	2.02E-04	6.39E-05
8VF	-1.20E-08	7.30E-07	2.30E-06	-2.69E-05
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-9.71E-09	1.04E-06	2.85E-06	8.45E-06
5F	-6.16E-08	4.90E-06	-4.75E-05	6.01E-04
6F	-2.29E-08	1.68E-06	-1.05E-05	4.15E-04
7F	1.86E-07	-1.49E-05	1.53E-04	1.38E-02
8F	1.32E-09	-6.58E-08	3.68E-06	6.51E-05
1M	-7.28E-07	6.14E-05	-7.32E-04	2.44E-03
2M	3.02E-07	-2.90E-05	8.51E-04	-2.53E-03
3M	-8.02E-07	6.28E-05	-4.52E-04	4.82E-04
4M	-1.77E-06	1.34E-04	-5.57E-04	4.20E-02
5M	1.79E-06	-1.83E-04	5.50E-03	3.51E-02
6M	1.37E-06	-8.33E-05	-1.90E-03	4.68E-01
7M	8.67E-07	-6.62E-05	6.31E-04	6.38E-02
8M	-3.68E-08	2.72E-06	-1.12E-05	-2.19E-05
1S	-2.33E-07	8.99E-06	6.79E-04	2.84E-03

Lumped Species	A	B	C	D
2S	2.27E-07	-2.50E-05	1.04E-03	3.71E-03
3S	1.06E-06	-1.08E-04	3.33E-03	6.34E-03
4S	4.62E-06	-4.27E-04	1.11E-02	4.03E-02
5S	2.30E-06	-1.93E-04	3.71E-03	4.09E-02
6S	-1.08E-06	7.90E-05	-4.63E-04	9.47E-03
7S	-9.86E-08	6.17E-06	-8.14E-06	1.55E-03
8S	-1.66E-10	-1.20E-09	1.23E-06	-7.86E-06
1P	-2.22E-07	1.67E-05	-1.15E-04	2.47E-03
2P	6.43E-07	-6.84E-05	2.28E-03	-6.95E-03
3P	-3.70E-08	2.34E-06	2.02E-05	-2.10E-04
4P	-5.36E-07	4.61E-05	-7.33E-04	1.19E-02
5P	-1.48E-06	1.24E-04	-2.36E-03	1.59E-01
6P	2.78E-08	-2.34E-06	4.13E-05	9.63E-04
7P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8P	1.77E-06	-1.54E-04	3.40E-03	3.69E-03
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	4.84E-09	-1.65E-07	-2.14E-05	1.46E-03
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	-3.10E-09	1.24E-07	8.61E-06	-5.64E-05
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-2.92E-08	3.52E-06	-1.50E-04	2.57E-03
GLY	3.72E-08	-3.37E-06	8.99E-05	-2.77E-05

Precursor: Isoprene NO _x level: Low NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	2.09E-10	-1.91E-08	5.24E-07	-3.41E-06
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	2.25E-13	-2.09E-11	5.96E-10	-4.21E-09
7VF	1.04E-06	-9.24E-05	2.29E-03	-4.93E-03
8VF	2.09E-08	-1.86E-06	4.60E-05	-2.82E-05
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	3.52E-08	-3.41E-06	1.05E-04	-3.05E-04
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-1.34E-07	1.62E-05	-6.64E-04	9.79E-03
7F	2.74E-07	-2.68E-05	8.42E-04	-2.77E-03
8F	-1.37E-08	1.08E-06	-2.17E-05	2.49E-04
1M	7.04E-09	-6.53E-07	1.90E-05	-1.12E-04
2M	2.25E-08	-2.14E-06	6.03E-05	-1.43E-04
3M	2.95E-07	-2.74E-05	7.58E-04	-3.44E-04
4M	3.76E-10	-1.81E-08	-4.36E-07	3.07E-05
5M	8.14E-08	-7.57E-06	2.23E-04	-1.42E-06
6M	-1.37E-07	4.34E-06	6.14E-04	6.92E-03
7M	-6.86E-07	5.46E-05	-1.07E-03	1.49E-02
8M	2.46E-07	1.37E-05	-2.83E-03	1.43E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-1.06E-13	1.14E-11	-3.93E-10	4.48E-09
3S	-8.40E-11	1.18E-08	-5.54E-07	9.49E-06
4S	5.61E-09	8.12E-08	-3.91E-05	1.14E-03
5S	3.36E-08	-2.88E-06	7.96E-05	1.56E-03
6S	5.06E-07	-4.39E-05	1.17E-03	1.74E-02
7S	2.27E-09	3.09E-06	-2.64E-04	8.49E-03
8S	5.91E-07	-5.41E-05	1.49E-03	1.14E-02
1P	1.89E-07	-1.79E-05	5.09E-04	-1.12E-03
2P	2.67E-07	-2.27E-05	4.74E-04	4.87E-03
3P	3.14E-08	-2.85E-06	7.30E-05	-1.80E-04
4P	-2.55E-08	2.09E-06	-4.22E-05	5.23E-04
5P	-1.21E-08	1.69E-06	-8.72E-05	1.90E-03
6P	-4.49E-07	4.52E-05	-1.45E-03	2.07E-02
7P	-2.08E-06	1.66E-04	-2.65E-03	3.47E-02
8P	-7.89E-07	1.06E-04	-4.70E-03	9.99E-02
1MA	6.47E-09	-6.00E-07	1.61E-05	-2.39E-05
2MA	1.03E-08	-9.70E-07	2.77E-05	-1.08E-04
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	-4.67E-10	3.86E-08	-6.91E-07	4.62E-06
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.35E-07	1.74E-05	-8.43E-04	2.14E-02
GLY	-4.19E-08	6.53E-06	-3.99E-04	1.23E-02
IEPOX	1.59E-06	-1.60E-04	5.50E-03	-3.23E-02

Precursor: Benzene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A ^a	B ^a	C ^a	D ^a
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	2.23E-04	-3.09E-03	1.31E-02	-1.63E-02
4VF	2.51E-04	-6.48E-03	4.84E-02	-4.35E-02
5VF	2.66E-06	-3.74E-05	1.64E-04	-2.05E-04
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	6.02E-04	-1.48E-02	1.09E-01	-1.47E-01
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	7.97E-07	-1.13E-05	4.80E-05	-6.15E-05
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	7.44E-04	-1.71E-02	1.23E-01	-1.62E-01
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	6.41E-06	-1.00E-04	5.80E-04	-7.11E-04
5M	8.22E-07	-1.15E-05	4.88E-05	-6.09E-05
6M	3.51E-05	-5.01E-04	2.50E-03	-1.07E-03
7M	1.52E-06	-2.13E-05	9.05E-05	-1.07E-04
8M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	3.67E-06	-5.22E-05	2.21E-04	-2.86E-04
5S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6S	2.20E-05	-3.15E-04	1.90E-03	-1.13E-03
7S	1.42E-05	-2.02E-04	1.01E-03	-9.95E-04
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6P	1.67E-04	-2.43E-03	1.37E-02	-1.13E-02
7P	1.69E-04	-3.59E-03	2.42E-02	1.25E-02
8P	3.50E-03	-8.73E-02	6.43E-01	-5.39E-01
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	1.26E-03	-2.93E-02	2.10E-01	-2.24E-01

195 ^a The stoichiometric coefficient is calculated by $\alpha = A \times (VOC:NO_x)^3 +$
196 $B \times (VOC:NO_x)^2 + C \times (VOC:NO_x) + D$, where VOC:NO_x is the ratio of
197 total non-methane hydrocarbons to NO_x ratio (ppbC ppb⁻¹).

Precursor: Toluene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	1.62E-06	-4.68E-05	4.69E-04	-5.96E-04
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	2.16E-06	-5.93E-05	4.76E-04	-4.10E-04
6VF	8.65E-07	-2.49E-05	2.19E-04	-2.97E-04
7VF	9.18E-06	-2.88E-04	3.15E-03	1.05E-03
8VF	-1.86E-05	5.31E-04	-4.92E-03	3.35E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	3.74E-06	-1.18E-04	1.34E-03	7.14E-04
4F	2.23E-06	-6.57E-05	6.38E-04	-6.77E-04
5F	4.41E-08	-7.66E-07	5.46E-06	-7.44E-06
6F	1.55E-05	-4.49E-04	4.26E-03	-3.70E-03
7F	-3.95E-05	8.74E-04	-2.66E-03	6.00E-02
8F	-7.90E-05	1.96E-03	-1.04E-02	5.77E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	2.06E-05	-5.58E-04	4.75E-03	-6.31E-03
4M	-9.51E-07	-2.00E-05	1.61E-03	6.16E-03
5M	2.68E-06	-1.06E-04	2.17E-03	-1.09E-03
6M	2.85E-06	-2.18E-04	6.27E-03	1.54E-02
7M	7.04E-05	-1.80E-03	1.24E-02	4.89E-02
8M	-7.18E-05	1.84E-03	-1.21E-02	1.08E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	4.63E-09	-5.69E-08	2.34E-07	-2.88E-07
3S	1.74E-09	-1.94E-08	8.19E-08	-1.04E-07
4S	3.80E-06	-1.24E-04	1.55E-03	-2.15E-03
5S	1.80E-05	-4.73E-04	3.70E-03	2.73E-02
6S	4.54E-05	-1.32E-03	1.43E-02	1.33E-02
7S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	3.11E-08	-4.50E-07	1.92E-06	-2.38E-06
2P	1.21E-07	-1.62E-06	6.81E-06	-8.41E-06
3P	2.13E-04	-5.80E-03	4.80E-02	-3.49E-02
4P	-1.59E-04	4.39E-03	-3.64E-02	1.52E-01
5P	1.22E-04	-3.47E-03	3.17E-02	-4.53E-03
6P	8.74E-05	-2.08E-03	8.39E-03	1.15E-01
7P	-2.16E-04	5.94E-03	-5.11E-02	2.72E-01
8P	-2.82E-04	7.84E-03	-6.75E-02	3.07E-01
1MA	2.71E-08	-3.24E-07	1.33E-06	-1.65E-06
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-8.10E-05	1.72E-03	-2.19E-03	6.24E-02
GLY	-4.17E-06	-2.72E-04	1.01E-02	1.73E-01

Precursor: o-Xylene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	-2.51E-07	-1.81E-05	5.91E-04	-7.13E-04
3VF	6.02E-06	-1.85E-04	1.73E-03	4.70E-03
4VF	2.30E-06	-6.69E-05	5.70E-04	-2.61E-05
5VF	2.09E-06	-5.12E-05	2.09E-04	4.01E-03
6VF	3.80E-06	-1.02E-04	7.30E-04	4.41E-04
7VF	-4.22E-05	8.64E-04	1.72E-03	1.06E-01
8VF	-1.69E-05	5.15E-04	-5.57E-03	4.66E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-1.59E-05	1.76E-04	3.62E-03	-5.33E-03
5F	4.51E-06	-1.76E-04	2.11E-03	-2.53E-03
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	1.46E-05	-4.38E-04	3.94E-03	9.73E-03
8F	-3.43E-06	3.26E-05	1.62E-03	9.90E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	1.34E-05	-3.45E-04	2.28E-03	1.18E-03
4M	3.35E-09	1.98E-08	1.12E-07	-3.22E-07
5M	2.47E-07	-3.93E-05	8.48E-04	-1.13E-03
6M	-5.80E-06	-1.64E-05	3.26E-03	-4.25E-03
7M	-1.46E-06	6.87E-05	-1.67E-03	1.04E-01
8M	6.72E-06	-3.28E-04	6.71E-03	2.59E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	5.03E-10	1.13E-08	-2.11E-08	-8.98E-10
3S	7.33E-11	4.08E-09	2.19E-08	-5.89E-08
4S	7.14E-11	1.56E-09	1.98E-08	-2.94E-08
5S	-2.10E-06	3.37E-05	-8.66E-05	3.00E-02
6S	-6.92E-06	-5.54E-05	4.93E-03	3.87E-03
7S	2.09E-05	-5.50E-04	3.70E-03	1.11E-02
8S	3.49E-05	-9.57E-04	7.48E-03	1.33E-01
1P	1.67E-10	1.43E-10	6.66E-09	-1.76E-08
2P	3.93E-09	8.04E-09	3.99E-08	-1.33E-07
3P	8.24E-05	-2.17E-03	1.43E-02	5.91E-02
4P	-4.79E-05	1.26E-03	-7.76E-03	7.89E-02
5P	1.70E-05	-6.31E-04	7.05E-03	3.41E-02
6P	4.47E-06	-7.88E-05	-3.42E-04	2.12E-02
7P	-3.92E-05	1.43E-03	-1.79E-02	2.44E-01
8P	-7.62E-05	2.08E-03	-1.58E-02	1.44E-01
1MA	2.93E-10	5.86E-09	9.16E-08	-2.11E-07
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	3.45E-05	-1.29E-03	1.78E-02	3.31E-02
GLY	5.01E-05	-1.48E-03	1.32E-02	4.06E-02

Precursor: m-Xylene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-2.76E-08	-3.92E-07	2.48E-07	4.34E-04
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-8.42E-07	-6.33E-06	5.46E-04	2.29E-02
8VF	-1.49E-05	4.55E-04	-4.48E-03	4.79E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-1.35E-07	-2.26E-05	6.54E-04	2.07E-02
4F	-6.70E-07	1.23E-05	-2.00E-05	2.39E-03
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-6.33E-07	8.40E-06	4.33E-04	-2.39E-04
7F	9.44E-05	-2.59E-03	2.19E-02	1.88E-01
8F	2.69E-05	-8.83E-04	9.87E-03	1.49E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-3.97E-07	1.04E-05	-7.22E-05	8.38E-04
4M	-1.84E-06	3.57E-05	2.20E-03	-2.11E-03
5M	1.64E-08	-8.71E-07	1.84E-05	-7.27E-06
6M	1.04E-07	-6.73E-06	1.06E-03	-9.49E-04
7M	-1.37E-05	4.27E-04	-4.44E-03	8.53E-02
8M	4.33E-05	-1.38E-03	1.45E-02	3.42E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-1.41E-07	2.77E-06	3.35E-05	-2.12E-05
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5S	-4.87E-06	1.17E-04	-3.06E-04	2.69E-02
6S	5.49E-07	-7.00E-06	2.62E-03	2.27E-02
7S	-1.22E-06	3.09E-05	-1.97E-04	6.55E-03
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	6.15E-10	-9.68E-09	4.37E-08	-5.70E-08
2P	6.04E-08	-8.52E-07	3.78E-06	-4.84E-06
3P	-9.42E-06	2.55E-04	-1.76E-03	2.94E-02
4P	1.97E-05	-4.75E-04	3.15E-03	8.65E-02
5P	-3.47E-06	9.53E-05	-6.38E-04	3.04E-02
6P	-1.42E-05	4.88E-04	-6.76E-03	6.49E-02
7P	2.34E-06	2.64E-04	-8.91E-03	3.44E-01
8P	-1.10E-05	3.92E-04	-4.74E-03	2.95E-02
1MA	1.41E-09	-1.89E-08	8.28E-08	-1.05E-07
2MA	2.68E-09	-3.85E-08	1.69E-07	-2.15E-07
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	8.67E-05	-2.95E-03	3.40E-02	1.09E-01
GLY	1.14E-05	-3.61E-04	3.76E-03	4.57E-02

Precursor: p-Xylene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	4.87E-05	-1.59E-03	1.38E-02	6.44E-02
8VF	-6.04E-06	2.13E-04	-2.43E-03	2.87E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	1.53E-06	-1.04E-04	1.45E-03	3.73E-03
4F	-8.19E-06	1.77E-04	-3.87E-04	1.78E-03
5F	-7.38E-07	2.01E-05	-1.07E-04	1.49E-04
6F	1.58E-05	-7.07E-04	8.84E-03	-1.14E-02
7F	1.34E-05	-3.30E-04	1.59E-03	2.16E-02
8F	1.01E-05	-2.75E-04	1.88E-03	3.72E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	9.00E-05	-2.87E-03	2.76E-02	-3.29E-02
5M	7.71E-07	-2.65E-05	2.85E-04	-3.78E-04
6M	5.75E-05	-1.63E-03	1.39E-02	-7.54E-03
7M	2.26E-05	-9.41E-04	1.06E-02	7.99E-02
8M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	2.47E-06	-8.57E-05	8.96E-04	-1.13E-03
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-2.59E-05	6.85E-04	-3.59E-03	4.98E-03
5S	-5.66E-05	-1.83E-04	2.22E-02	-5.40E-03
6S	3.07E-05	-1.04E-03	1.04E-02	-8.12E-03
7S	2.73E-05	-7.69E-04	6.34E-03	-7.86E-03
8S	-2.56E-05	1.09E-03	-1.65E-02	1.74E-01
1P	-1.00E-05	2.83E-04	-1.50E-03	2.09E-03
2P	-5.55E-06	1.53E-04	-8.06E-04	1.12E-03
3P	-1.13E-04	3.44E-03	-3.22E-02	1.13E-01
4P	-5.74E-05	1.89E-03	-1.49E-02	7.37E-02
5P	4.06E-05	-1.68E-03	2.06E-02	1.31E-02
6P	-2.36E-05	8.50E-04	-8.04E-03	7.08E-02
7P	-9.44E-05	2.96E-03	-3.01E-02	1.38E-01
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	-5.93E-07	1.85E-05	-9.65E-05	1.32E-04
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	9.30E-05	-2.98E-03	2.66E-02	1.62E-02
GLY	3.12E-05	-1.26E-03	1.32E-02	7.57E-02

Precursor: 123-TMB^a NO_x level: High NO_x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-3.21E-08	7.66E-07	-1.81E-06	-7.37E-08
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	5.21E-05	-1.52E-03	1.26E-02	1.49E-04
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	7.12E-05	-2.09E-03	1.74E-02	-2.22E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	-3.98E-07	9.95E-06	-1.12E-05	-3.39E-05
3M	2.33E-05	-6.77E-04	5.57E-03	-2.25E-03
4M	6.76E-07	-2.06E-05	2.13E-04	-3.24E-04
5M	4.14E-05	-1.21E-03	1.03E-02	-1.64E-02
6M	-3.11E-04	8.97E-03	-7.36E-02	3.31E-01
7M	8.70E-05	-2.71E-03	2.46E-02	8.83E-02
8M	-1.78E-04	5.13E-03	-3.96E-02	1.41E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	1.23E-05	-3.65E-04	3.17E-03	-5.62E-03
4S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5S	1.23E-04	-3.71E-03	3.29E-02	-9.08E-03
6S	1.37E-04	-4.30E-03	4.12E-02	-3.83E-02
7S	4.08E-05	-1.19E-03	9.88E-03	-9.22E-03
8S	9.14E-05	-2.74E-03	2.33E-02	2.54E-01
1P	-7.28E-08	1.90E-06	-2.34E-06	-6.40E-06
2P	2.51E-05	-7.05E-04	5.65E-03	-1.27E-03
3P	2.43E-07	-9.24E-06	1.53E-04	-2.88E-04
4P	-2.20E-04	6.33E-03	-5.11E-02	2.36E-01
5P	2.63E-04	-7.71E-03	6.55E-02	-9.79E-02
6P	-6.86E-05	2.11E-03	-2.01E-02	8.73E-02
7P	-1.31E-04	4.00E-03	-3.82E-02	2.07E-01
8P	-1.95E-04	5.67E-03	-4.76E-02	2.07E-01
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-2.90E-05	6.39E-04	-1.90E-03	8.04E-02
GLY	1.22E-05	-4.49E-04	5.15E-03	2.66E-02

212 ^a “123-TMB” represents 1,2,3-trimethylbenzene.

Precursor: 124-TMB^a NO_x level: High NO_x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	2.28E-05	-4.47E-04	2.29E-03	2.99E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	3.69E-07	-6.47E-06	3.29E-05	-4.78E-05
3F	7.00E-06	-1.74E-04	1.50E-03	1.89E-04
4F	7.48E-07	-1.65E-05	1.25E-04	-1.47E-04
5F	9.76E-06	-2.04E-04	1.52E-03	-2.00E-03
6F	-5.82E-05	1.24E-03	-1.07E-02	3.41E-01
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	-2.41E-06	-3.87E-06	7.69E-04	1.23E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	2.80E-05	-6.33E-04	5.72E-03	-5.94E-03
5M	7.93E-06	-1.69E-04	1.24E-03	2.62E-04
6M	8.95E-06	-2.01E-04	1.69E-03	-1.26E-03
7M	8.02E-05	-1.89E-03	1.49E-02	5.75E-02
8M	-8.88E-06	4.54E-05	1.55E-03	3.56E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	2.56E-07	-4.83E-06	2.85E-05	-4.09E-05
4S	2.31E-07	-4.07E-06	2.07E-05	-3.01E-05
5S	3.62E-05	-8.68E-04	7.18E-03	1.98E-03
6S	2.89E-05	-6.88E-04	6.06E-03	-1.75E-03
7S	1.22E-05	-2.95E-04	2.45E-03	2.30E-04
8S	1.94E-05	-3.23E-04	-1.44E-03	2.94E-01
1P	6.92E-08	-1.23E-06	6.26E-06	-9.11E-06
2P	3.49E-06	-7.58E-05	5.86E-04	-5.51E-04
3P	7.77E-08	-1.37E-06	6.99E-06	-1.02E-05
4P	-2.10E-05	6.08E-04	-7.33E-03	1.83E-01
5P	6.02E-06	-1.35E-04	1.01E-03	1.12E-03
6P	-1.67E-05	4.69E-04	-6.02E-03	8.57E-02
7P	-6.79E-06	2.52E-04	-4.82E-03	1.71E-01
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	4.11E-05	-1.36E-03	1.58E-02	1.08E-01
GLY	8.20E-06	-2.11E-04	1.83E-03	2.59E-02

215 ^a “124-TMB” represents 1,2,4-trimethylbenzene.

218 **Table S3. (Continued)**

Precursor: 135-TMB NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	1.96E-07	-3.20E-06	1.61E-05	-2.32E-05
3F	2.18E-06	-6.01E-05	4.57E-04	2.33E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-2.16E-05	3.34E-04	2.04E-03	9.78E-02
7F	3.32E-08	-5.44E-07	2.72E-06	-3.92E-06
8F	-3.24E-06	1.50E-04	-2.44E-03	3.25E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	5.80E-09	-9.46E-08	4.74E-07	-6.83E-07
4M	2.31E-07	-3.33E-06	2.10E-05	-3.04E-05
5M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7M	1.72E-05	-3.96E-04	1.38E-03	7.10E-02
8M	-5.48E-06	-3.87E-04	1.26E-02	1.30E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	1.23E-05	-3.12E-04	1.73E-03	4.03E-02
5S	1.61E-07	-2.66E-06	1.61E-05	-2.29E-05
6S	5.72E-06	-1.29E-04	7.35E-04	8.79E-03
7S	9.54E-06	-2.60E-04	1.92E-03	9.37E-03
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	7.08E-08	-1.18E-06	5.92E-06	-8.53E-06
2P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3P	1.77E-07	-2.91E-06	1.46E-05	-2.11E-05
4P	-5.62E-05	1.40E-03	-8.37E-03	1.81E-01
5P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6P	-2.02E-05	7.25E-04	-9.42E-03	1.27E-01
7P	-8.32E-05	2.29E-03	-1.93E-02	3.57E-01
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	7.67E-05	-2.79E-03	3.32E-02	2.70E-01
GLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00

219 ^a “135-TMB” represents 1,3,5-trimethylbenzene.

220

221

Precursor: Ethylbenzene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	-4.50E-09	4.70E-07	-2.24E-06	3.00E-06
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	1.86E-06	-4.96E-05	4.01E-04	1.44E-04
6VF	2.50E-06	-1.15E-04	1.57E-03	3.58E-03
7VF	1.25E-08	-1.70E-07	6.87E-07	-8.11E-07
8VF	1.27E-06	-4.10E-05	3.41E-04	1.22E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	4.92E-06	-1.84E-04	2.20E-03	3.23E-03
3F	1.31E-06	-1.73E-05	6.96E-05	-8.21E-05
4F	4.73E-06	-1.27E-04	1.14E-03	-3.47E-04
5F	2.01E-07	-3.30E-06	2.14E-05	-2.99E-05
6F	-3.06E-05	5.17E-04	-4.87E-04	3.12E-02
7F	1.95E-05	-1.02E-03	1.55E-02	4.79E-03
8F	-3.37E-05	5.67E-04	1.68E-04	7.59E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	5.26E-08	-7.11E-07	2.88E-06	-3.42E-06
3M	3.97E-05	-9.86E-04	7.68E-03	-7.02E-03
4M	6.52E-07	-6.12E-06	2.13E-05	-2.22E-05
5M	8.13E-07	-1.56E-05	8.23E-05	2.33E-04
6M	5.85E-08	5.53E-06	-2.96E-05	4.24E-05
7M	2.00E-06	-2.26E-04	4.07E-03	3.54E-02
8M	-2.04E-04	3.25E-03	7.39E-03	4.27E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	7.56E-06	-1.92E-04	2.03E-03	2.11E-02
5S	2.14E-05	-5.27E-04	4.54E-03	2.64E-03
6S	4.68E-06	-1.31E-04	1.13E-03	2.91E-03
7S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	1.32E-06	-1.83E-05	7.50E-05	-8.95E-05
2P	2.39E-06	-5.03E-05	3.46E-04	-2.78E-04
3P	1.23E-04	-3.35E-03	2.76E-02	2.26E-02
4P	-3.38E-05	8.27E-04	-5.01E-03	5.36E-02
5P	8.31E-06	-2.07E-04	1.84E-03	2.11E-02
6P	4.17E-06	-1.13E-04	1.06E-03	6.75E-03
7P	2.36E-05	-1.02E-03	7.86E-03	3.30E-01
8P	3.44E-04	-8.88E-03	6.82E-02	5.16E-02
1MA	4.73E-07	-6.44E-06	2.63E-05	-3.13E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	4.58E-05	-2.34E-03	3.53E-02	5.79E-02

Precursor: Propylbenzene NO_x level: High NO_x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	1.30E-09	-2.00E-08	8.59E-08	-1.06E-07
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-1.79E-06	3.82E-05	-1.10E-04	1.65E-04
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	-2.14E-06	3.30E-05	1.34E-04	4.48E-04
7VF	-7.59E-07	1.94E-05	-8.62E-05	1.11E-04
8VF	2.18E-06	-8.18E-05	7.56E-04	3.94E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-3.83E-06	7.14E-05	1.18E-05	5.95E-04
3F	-1.72E-06	3.89E-05	-1.23E-04	1.80E-04
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	4.84E-08	-7.17E-07	3.04E-06	-3.71E-06
6F	-5.52E-05	1.02E-03	1.28E-05	3.21E-02
7F	-3.33E-05	7.07E-04	-1.51E-03	4.62E-03
8F	-1.44E-05	3.22E-04	-3.87E-04	7.32E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	2.51E-08	-3.71E-07	1.57E-06	-1.91E-06
3M	-1.93E-05	4.64E-04	-2.00E-03	2.58E-03
4M	6.42E-07	-8.66E-06	3.55E-05	-4.18E-05
5M	2.09E-07	-3.82E-06	5.06E-05	1.15E-05
6M	7.21E-07	-9.95E-06	4.12E-05	-4.82E-05
7M	-4.22E-05	1.02E-03	-2.10E-03	1.65E-02
8M	-8.27E-05	2.14E-03	-5.33E-03	3.05E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	2.87E-08	-4.03E-07	1.67E-06	-2.01E-06
3S	-8.42E-08	2.18E-06	-9.38E-06	1.37E-05
4S	-1.05E-05	7.74E-05	2.64E-03	3.93E-03
5S	-1.62E-05	3.41E-04	-5.58E-04	2.94E-03
6S	-6.17E-06	1.11E-04	3.76E-06	8.43E-04
7S	-2.84E-05	4.47E-04	1.19E-03	1.74E-02
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	6.80E-07	-1.01E-05	4.28E-05	-5.24E-05
2P	-1.31E-04	2.64E-03	-5.91E-03	1.16E-02
3P	1.57E-05	-4.94E-04	4.56E-03	3.43E-02
4P	1.32E-05	-4.15E-04	3.63E-03	1.48E-03
5P	-5.01E-07	1.23E-05	-5.85E-05	7.56E-05
6P	-3.24E-06	-5.34E-04	1.11E-02	7.16E-02
7P	-1.16E-04	1.19E-03	1.39E-02	1.10E-01
8P	-9.12E-05	1.67E-03	-2.22E-03	4.38E-02
1MA	2.04E-07	-3.01E-06	1.27E-05	-1.55E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.46E-04	2.93E-03	-3.23E-03	5.64E-02
GLY	1.26E-03	-2.93E-02	2.10E-01	-2.24E-01

Precursor: Terpene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	4.54E-07	-3.76E-06	1.11E-05	-1.07E-05
2VF	9.53E-09	-7.37E-08	2.03E-07	-1.86E-07
3VF	-1.58E-06	2.59E-05	-1.34E-05	-3.67E-05
4VF	3.16E-08	-2.47E-07	6.85E-07	-6.34E-07
5VF	2.05E-05	-4.49E-04	3.34E-03	-1.61E-03
6VF	-7.64E-08	1.23E-06	1.69E-07	7.17E-05
7VF	-3.09E-06	5.57E-05	-9.87E-05	5.75E-05
8VF	2.47E-08	3.57E-07	-7.02E-07	3.70E-07
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-9.84E-08	3.00E-06	-6.66E-06	3.86E-06
5F	1.99E-06	-4.07E-05	2.77E-04	-1.34E-04
6F	1.60E-06	-3.36E-05	2.31E-04	-1.07E-04
7F	1.20E-06	-5.55E-05	7.13E-04	1.14E-02
8F	-2.29E-07	5.60E-06	-3.76E-05	1.49E-04
1M	1.51E-06	-1.27E-05	3.75E-05	-3.63E-05
2M	-2.99E-06	4.52E-05	2.18E-04	-4.94E-04
3M	2.91E-06	-2.23E-05	6.12E-05	-5.62E-05
4M	6.65E-05	-1.38E-03	9.94E-03	1.97E-02
5M	7.81E-05	-1.87E-03	1.73E-02	8.97E-03
6M	1.39E-04	-4.40E-03	4.04E-02	3.39E-01
7M	1.72E-05	-3.94E-04	3.23E-03	5.54E-02
8M	1.87E-07	-1.29E-06	3.38E-06	-3.04E-06
1S	1.24E-05	-2.93E-04	2.99E-03	-2.77E-03

Lumped Species	A	B	C	D
2S	7.51E-06	-2.20E-04	2.91E-03	-2.41E-03
3S	-1.26E-06	1.53E-05	1.82E-03	1.14E-02
4S	-9.68E-05	1.71E-03	-1.12E-03	5.39E-02
5S	-4.49E-05	6.73E-04	6.14E-04	3.52E-02
6S	1.14E-05	-1.51E-04	2.78E-04	1.17E-02
7S	-4.74E-07	3.23E-05	-4.26E-04	3.36E-03
8S	5.90E-09	-3.34E-08	7.73E-08	-6.38E-08
1P	6.93E-07	-5.17E-06	2.48E-05	2.28E-03
2P	-5.35E-06	8.83E-05	7.29E-04	-1.48E-03
3P	1.90E-07	-3.70E-07	5.77E-07	-3.12E-07
4P	1.30E-05	-2.51E-04	1.36E-03	7.18E-03
5P	-6.92E-05	1.98E-03	-2.07E-02	2.21E-01
6P	-1.52E-06	3.20E-05	-1.92E-04	1.43E-03
7P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8P	-2.82E-05	3.46E-04	2.32E-03	-3.75E-03
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	-1.26E-06	3.03E-05	-2.61E-04	2.08E-03
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	2.12E-08	2.22E-07	-1.21E-06	1.46E-06
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	2.95E-06	-6.47E-05	3.63E-04	1.29E-03
GLY	-9.14E-07	1.67E-05	-1.14E-05	-8.02E-06

Precursor: Isoprene NO _x level: High NO _x Aging stats: Fresh				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-8.65E-10	2.31E-08	-1.12E-07	1.60E-07
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	-3.53E-13	1.31E-11	-7.56E-11	1.14E-10
7VF	1.47E-05	-4.09E-04	4.08E-03	-3.57E-03
8VF	1.12E-06	-2.89E-05	2.34E-04	-2.85E-04
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-2.13E-07	5.89E-06	-1.27E-05	2.21E-04
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	2.45E-05	-6.59E-04	5.10E-03	-4.88E-03
7F	-8.48E-06	2.17E-04	-1.21E-03	2.12E-03
8F	-2.46E-07	6.52E-06	-3.89E-05	5.74E-05
1M	-1.28E-08	4.80E-07	-1.70E-06	1.12E-05
2M	2.98E-07	-7.11E-06	7.26E-05	-5.07E-05
3M	-5.55E-06	1.35E-04	-6.30E-04	3.27E-03
4M	1.87E-07	-4.75E-06	3.32E-05	-1.51E-05
5M	-4.34E-06	1.05E-04	-5.60E-04	9.19E-04
6M	-2.34E-05	6.07E-04	-3.52E-03	1.00E-02
7M	2.09E-06	-3.76E-05	6.44E-04	2.05E-03
8M	-9.84E-05	2.15E-03	-1.46E-02	1.49E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	3.49E-10	-8.48E-09	5.62E-08	-5.84E-08
3S	7.75E-08	-1.85E-06	1.08E-05	6.84E-06
4S	3.50E-06	-9.47E-05	7.72E-04	-9.58E-04
5S	2.10E-07	-6.33E-06	6.85E-05	1.91E-03
6S	-7.48E-06	1.51E-04	-2.50E-05	1.79E-02
7S	-1.54E-05	3.25E-04	-1.48E-03	3.57E-03
8S	-2.09E-05	4.61E-04	-1.18E-03	6.83E-03
1P	-3.30E-06	8.06E-05	-3.14E-04	6.88E-04
2P	-2.96E-07	-5.70E-06	2.28E-04	6.57E-03
3P	-3.30E-07	7.42E-06	-1.78E-05	7.57E-05
4P	-8.51E-07	2.12E-05	-1.31E-04	2.50E-04
5P	-4.46E-06	1.03E-04	-5.82E-04	8.63E-04
6P	7.32E-05	-1.85E-03	1.27E-02	-3.79E-03
7P	-4.84E-05	1.26E-03	-7.51E-03	1.47E-02
8P	-6.78E-06	-3.55E-04	9.27E-03	1.01E-02
1MA	-1.60E-07	3.77E-06	-1.60E-05	2.42E-05
2MA	-1.67E-07	4.18E-06	-1.95E-05	2.87E-05
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	2.44E-10	8.36E-09	-7.88E-08	1.33E-07
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.06E-05	1.74E-04	-2.42E-05	7.27E-03
GLY	1.80E-06	-7.68E-05	9.30E-04	5.12E-03
IEPOX	-1.99E-05	6.00E-04	-3.61E-03	5.38E-03

Precursor: Benzene	NO _x level: High NO _x		Aging stats: Aged	
Lumped Species	A ^a	B ^a	C ^a	D ^a
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	3.29E-04	8.05E-03	4.03E-03	-2.10E-02
4VF	-1.66E-05	3.57E-03	-2.54E-02	8.02E-02
5VF	-1.23E-06	-3.76E-05	2.48E-04	-2.98E-04
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-4.91E-06	2.03E-03	-1.21E-02	4.11E-02
8VF	1.89E-06	-1.81E-05	6.69E-05	-7.06E-05
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	-9.13E-06	-8.72E-05	3.21E-04	-3.33E-04
6F	-1.50E-05	-1.75E-04	6.69E-04	-7.17E-04
7F	4.51E-06	-1.10E-06	4.09E-06	-4.32E-06
8F	2.35E-06	2.15E-03	-6.82E-03	4.36E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	9.22E-07	2.14E-06	2.66E-04	-6.43E-05
5M	-1.40E-05	-1.39E-04	5.20E-04	-5.45E-04
6M	-1.07E-04	-1.23E-03	7.56E-03	-5.36E-03
7M	-6.21E-04	-5.52E-03	2.05E-02	-2.17E-02
8M	6.31E-06	-2.79E-06	1.03E-05	-1.09E-05
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-1.39E-03	-1.39E-02	5.18E-02	-5.51E-02
5S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6S	5.27E-05	-4.93E-04	4.99E-03	1.69E-04
7S	-3.18E-06	-1.00E-04	2.39E-03	-2.07E-03
8S	6.31E-07	-3.94E-08	1.47E-07	-1.55E-07
1P	8.01E-05	-1.05E-03	3.88E-03	-4.10E-03
2P	2.65E-07	-2.16E-07	8.00E-07	-8.45E-07
3P	1.97E-05	-2.31E-06	8.55E-06	-9.02E-06
4P	-2.52E-05	-3.74E-04	1.42E-03	-1.51E-03
5P	4.36E-05	-3.21E-05	1.19E-04	-1.25E-04
6P	8.20E-05	-5.01E-03	4.08E-02	-2.24E-02
7P	-5.44E-05	3.08E-03	-1.18E-02	1.03E-01
8P	6.42E-04	4.98E-02	-3.00E-01	1.11E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	-1.09E-04	8.03E-03	-4.01E-02	1.77E-01

^a The stoichiometric coefficient is calculated by $\alpha = A \times (VOC:NO_x)^3 + B \times (VOC:NO_x)^2 + C \times (VOC:NO_x) + D$, where VOC:NO_x is the ratio of total non-methane hydrocarbons to NO_x ratio (ppbC ppb⁻¹).

Precursor: Toluene NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-6.21E-06	1.66E-04	-1.28E-03	3.33E-03
6VF	-1.54E-06	4.26E-05	-3.15E-04	1.27E-03
7VF	-1.71E-05	4.83E-04	-4.24E-03	1.27E-02
8VF	-3.37E-05	9.15E-04	-7.47E-03	2.26E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-5.26E-06	1.42E-04	-1.12E-03	4.09E-03
4F	-3.08E-08	-1.33E-05	3.65E-04	2.39E-04
5F	2.06E-06	-5.15E-05	3.70E-04	-2.98E-04
6F	2.48E-05	-6.31E-04	4.40E-03	-1.55E-05
7F	-9.10E-05	2.54E-03	-2.16E-02	5.97E-02
8F	-4.76E-05	1.32E-03	-1.12E-02	3.02E-02
1M	-1.49E-07	3.54E-06	-1.27E-05	1.18E-05
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	2.43E-04	-6.27E-03	4.45E-02	-1.57E-02
4M	7.06E-06	-1.36E-04	2.61E-04	4.88E-03
5M	1.20E-05	-2.81E-04	1.64E-03	1.67E-03
6M	1.16E-05	-1.64E-04	-9.58E-04	1.73E-02
7M	-2.12E-04	5.93E-03	-5.08E-02	1.39E-01
8M	-1.46E-04	4.02E-03	-3.36E-02	1.01E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	-6.22E-06	1.28E-04	5.66E-05	-7.55E-04
4S	8.66E-05	-2.30E-03	1.74E-02	-2.33E-02
5S	1.57E-04	-4.06E-03	2.93E-02	-1.99E-02
6S	-5.62E-05	1.42E-03	-1.05E-02	4.99E-02
7S	-3.30E-06	4.11E-05	2.79E-04	-7.97E-04
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-1.72E-04	3.62E-03	-1.53E-02	1.80E-02
2P	-5.13E-06	-1.86E-06	1.98E-03	-4.33E-03
3P	-2.48E-04	7.77E-03	-7.29E-02	2.39E-01
4P	-6.13E-05	1.13E-03	-2.39E-03	2.11E-02
5P	6.59E-04	-1.69E-02	1.17E-01	-7.36E-02
6P	9.31E-05	-1.92E-03	7.98E-03	1.83E-01
7P	-4.34E-04	1.09E-02	-7.54E-02	1.68E-01
8P	-3.37E-04	8.75E-03	-6.45E-02	1.49E-01
1MA	-1.00E-06	1.00E-04	9.00E-04	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-5.53E-05	1.57E-03	-1.39E-02	5.12E-02
GLY	-2.58E-04	7.38E-03	-6.54E-02	2.42E-01

Precursor: o-Xylene NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	-6.42E-06	1.79E-04	-1.50E-03	3.79E-03
4VF	-8.50E-07	2.32E-05	-1.82E-04	6.95E-04
5VF	-7.01E-07	1.83E-05	-1.27E-04	4.45E-04
6VF	-5.35E-07	1.11E-05	-3.68E-05	2.51E-04
7VF	-2.68E-05	7.36E-04	-6.00E-03	1.59E-02
8VF	-2.06E-05	5.69E-04	-4.70E-03	1.22E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-2.91E-05	8.21E-04	-7.06E-03	1.89E-02
5F	-4.75E-05	1.41E-03	-1.31E-02	3.94E-02
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	-9.13E-06	2.48E-04	-1.96E-03	5.14E-03
8F	-3.15E-06	8.72E-05	-7.20E-04	1.91E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-1.75E-04	4.97E-03	-4.34E-02	1.38E-01
4M	-3.79E-07	1.03E-05	-5.13E-05	1.96E-04
5M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6M	-3.48E-05	9.80E-04	-8.13E-03	2.13E-02
7M	-8.75E-05	2.43E-03	-1.99E-02	5.32E-02
8M	-9.72E-06	2.70E-04	-2.22E-03	6.18E-03
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	1.51E-08	-3.92E-07	3.57E-06	-8.34E-07
3S	8.16E-06	-2.48E-04	2.68E-03	-4.74E-03
4S	1.16E-07	-1.01E-05	3.42E-04	-4.84E-04
5S	-7.92E-06	2.69E-04	-3.21E-03	1.95E-02
6S	-4.26E-05	1.14E-03	-8.97E-03	2.58E-02
7S	-6.00E-05	1.66E-03	-1.41E-02	5.85E-02
8S	-6.27E-05	1.46E-03	-9.52E-03	1.33E-01
1P	-2.02E-06	4.09E-05	7.05E-04	-1.46E-03
2P	6.45E-06	-1.94E-04	2.12E-03	-3.58E-03
3P	1.56E-04	-4.08E-03	2.74E-02	4.18E-02
4P	3.97E-05	-1.38E-03	1.72E-02	-2.73E-02
5P	-2.67E-04	7.44E-03	-6.14E-02	1.80E-01
6P	1.87E-05	-4.83E-04	3.90E-03	4.47E-02
7P	-2.03E-04	5.65E-03	-4.39E-02	1.70E-01
8P	-1.76E-05	4.83E-04	-3.88E-03	9.79E-03
1MA	-3.30E-07	1.23E-05	-2.75E-05	1.67E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-2.32E-05	6.42E-04	-5.44E-03	1.78E-02
GLY	-7.37E-05	2.04E-03	-1.70E-02	5.46E-02

Precursor: m-Xylene NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	4.11E-07	-1.11E-05	8.95E-05	-1.43E-04
5VF	1.69E-06	-4.43E-05	3.43E-04	-4.84E-04
6VF	1.96E-06	-5.38E-05	4.38E-04	-6.98E-04
7VF	2.21E-06	-2.34E-05	-3.08E-04	6.35E-03
8VF	1.06E-05	-2.53E-04	1.74E-03	2.26E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	4.42E-06	-9.11E-05	3.36E-04	3.18E-03
4F	1.67E-05	-4.25E-04	3.19E-03	-2.16E-03
5F	8.59E-07	-2.30E-05	1.90E-04	-2.95E-04
6F	2.03E-05	-4.72E-04	2.38E-03	1.13E-02
7F	5.82E-06	-1.21E-04	7.55E-04	2.02E-03
8F	4.85E-07	-1.04E-05	4.42E-05	3.52E-04
1M	3.95E-08	-8.54E-07	9.37E-06	-1.77E-05
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-3.61E-05	1.16E-03	-1.24E-02	6.17E-02
4M	-7.58E-08	2.04E-05	-4.71E-04	3.78E-03
5M	-4.10E-06	1.17E-04	-1.10E-03	4.52E-03
6M	5.87E-06	-1.43E-04	8.05E-04	1.41E-03
7M	-1.88E-05	7.19E-04	-8.13E-03	5.42E-02
8M	1.49E-06	-3.31E-05	1.56E-04	8.23E-04
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	2.79E-07	-5.60E-06	2.61E-05	1.16E-04
3S	-5.85E-07	-2.12E-05	9.96E-04	-1.72E-03
4S	8.61E-06	-2.42E-04	2.05E-03	-3.10E-03
5S	8.50E-05	-1.66E-03	1.61E-03	1.10E-01
6S	1.23E-05	-2.79E-04	1.61E-03	4.76E-03
7S	5.35E-05	-1.48E-03	1.21E-02	-9.70E-03
8S	5.98E-06	-1.49E-04	9.09E-04	9.55E-04
1P	-7.32E-06	1.61E-04	-6.68E-05	-3.17E-04
2P	5.43E-06	-1.49E-04	1.62E-03	-2.53E-03
3P	-1.21E-05	4.07E-04	-7.18E-03	9.83E-02
4P	1.36E-05	-6.83E-04	1.15E-02	-1.93E-02
5P	5.84E-05	-1.39E-03	9.42E-03	3.04E-02
6P	-7.04E-05	2.11E-03	-1.71E-02	8.97E-02
7P	-7.94E-05	2.35E-03	-1.69E-02	1.36E-01
8P	3.22E-07	-6.42E-06	3.03E-05	2.08E-04
1MA	-3.38E-07	1.29E-05	-3.87E-05	3.54E-05
2MA	1.31E-07	-3.32E-06	2.75E-05	-4.53E-05
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	8.61E-05	-2.25E-03	1.65E-02	-1.19E-02
GLY	2.85E-05	-7.23E-04	4.80E-03	4.56E-03

Precursor: p-Xylene NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	-1.43E-04	4.08E-03	-3.41E-02	9.30E-02
8VF	-1.60E-05	4.61E-04	-3.79E-03	1.02E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	-9.00E-06	2.58E-04	-2.19E-03	5.67E-03
4F	-3.99E-06	1.18E-04	-9.99E-04	3.53E-03
5F	1.92E-07	-5.17E-06	4.86E-05	-4.82E-05
6F	-4.04E-05	1.17E-03	-1.02E-02	2.86E-02
7F	-1.29E-05	3.56E-04	-2.85E-03	7.57E-03
8F	-3.58E-06	1.02E-04	-8.52E-04	2.33E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-7.70E-05	2.23E-03	-1.97E-02	6.66E-02
5M	-1.83E-06	5.30E-05	-4.74E-04	1.49E-03
6M	-2.52E-05	7.29E-04	-6.11E-03	1.61E-02
7M	-2.14E-04	6.10E-03	-5.01E-02	1.37E-01
8M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-7.65E-07	2.26E-05	-1.90E-04	4.97E-04
3S	2.04E-06	-6.80E-05	7.32E-04	-1.26E-03
4S	1.20E-05	-3.36E-04	3.06E-03	-3.93E-03
5S	-3.99E-04	1.16E-02	-1.02E-01	3.21E-01
6S	-2.88E-05	8.24E-04	-7.06E-03	1.83E-02
7S	7.40E-06	-1.97E-04	1.54E-03	-1.05E-03
8S	-7.28E-05	2.09E-03	-1.75E-02	4.64E-02
1P	6.41E-06	-1.86E-04	1.96E-03	-3.00E-03
2P	2.99E-06	-8.95E-05	9.08E-04	-1.32E-03
3P	1.72E-05	-5.32E-04	4.65E-03	4.14E-02
4P	-2.26E-06	-1.67E-05	3.26E-03	4.96E-04
5P	-2.45E-05	7.09E-04	-6.70E-03	9.17E-02
6P	-8.25E-05	2.27E-03	-1.65E-02	8.47E-02
7P	2.66E-05	-8.19E-04	8.04E-03	-1.15E-02
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	-1.67E-07	5.03E-06	-1.49E-05	1.78E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-5.03E-05	1.48E-03	-1.32E-02	4.66E-02
GLY	-1.08E-04	3.10E-03	-2.62E-02	8.01E-02

Precursor: 123-TMB^a NO_x level: High NO_x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	1.28E-07	-4.45E-06	4.55E-05	-8.25E-05
5VF	7.38E-07	-2.29E-05	2.09E-04	-3.67E-04
6VF	7.56E-07	-2.83E-05	3.11E-04	-6.09E-04
7VF	-6.26E-05	1.94E-03	-1.95E-02	6.88E-02
8VF	1.55E-07	-9.73E-06	1.77E-04	-3.98E-04
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	-7.95E-05	2.49E-03	-2.54E-02	9.19E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	6.36E-06	-2.01E-04	1.89E-03	-3.22E-03
3M	4.79E-06	-8.83E-05	-4.87E-04	2.00E-02
4M	-1.49E-05	2.58E-05	7.45E-03	-1.74E-02
5M	1.86E-04	-5.04E-03	3.85E-02	-2.89E-02
6M	-1.34E-04	4.01E-03	-3.77E-02	1.11E-01
7M	-2.51E-04	7.52E-03	-7.09E-02	2.27E-01
8M	-2.49E-05	7.56E-04	-7.24E-03	2.19E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	-1.70E-05	5.39E-04	-5.24E-03	2.14E-02
4S	4.09E-06	-1.08E-04	7.65E-04	2.46E-04
5S	5.05E-05	-9.35E-04	-1.47E-03	8.12E-02
6S	-6.87E-05	2.23E-03	-2.39E-02	9.10E-02
7S	-1.03E-05	3.93E-04	-5.58E-03	4.57E-02
8S	7.87E-05	-2.74E-03	2.86E-02	2.94E-01
1P	2.85E-08	-4.68E-06	1.81E-04	-3.78E-04
2P	1.83E-05	-5.93E-04	6.27E-03	-8.27E-03
3P	1.51E-05	-6.86E-04	1.03E-02	-1.66E-02
4P	-9.10E-05	2.67E-03	-2.37E-02	7.95E-02
5P	4.84E-04	-1.19E-02	6.93E-02	7.32E-02
6P	-4.52E-05	1.28E-03	-1.06E-02	4.60E-02
7P	-1.81E-04	5.09E-03	-3.74E-02	1.28E-01
8P	-6.39E-05	1.88E-03	-1.73E-02	4.82E-02
1MA	-5.37E-09	2.33E-07	3.33E-06	-7.39E-06
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-3.00E-05	9.36E-04	-1.07E-02	6.44E-02
GLY	-2.85E-05	9.23E-04	-1.01E-02	4.72E-02

252 ^a “123-TMB” represents 1,2,3-trimethylbenzene.

Precursor: 124-TMB ^a NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	-6.89E-05	1.80E-03	-1.17E-02	2.36E-02
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-1.64E-05	4.17E-04	-2.40E-03	3.98E-03
3F	-1.94E-05	5.04E-04	-3.53E-03	8.44E-03
4F	-5.21E-05	1.27E-03	-6.73E-03	1.35E-02
5F	-1.71E-04	4.69E-03	-3.87E-02	1.21E-01
6F	-7.21E-05	1.89E-03	-1.21E-02	2.33E-02
7F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8F	-3.14E-06	8.05E-05	-5.06E-04	1.00E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4M	-4.27E-05	1.08E-03	-7.11E-03	1.50E-02
5M	-8.98E-06	2.37E-04	-1.55E-03	3.24E-03
6M	-3.28E-05	8.49E-04	-6.12E-03	1.44E-02
7M	-4.08E-04	1.05E-02	-7.03E-02	1.73E-01
8M	-7.82E-06	2.02E-04	-1.27E-03	2.49E-03
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-2.58E-07	6.69E-06	-3.89E-05	6.17E-05
3S	-2.09E-06	5.93E-05	-5.84E-04	3.75E-03
4S	-2.61E-05	6.12E-04	-2.52E-03	4.37E-03
5S	-3.07E-04	8.61E-03	-7.30E-02	2.52E-01
6S	-4.48E-05	1.15E-03	-7.90E-03	1.81E-02
7S	-2.63E-05	6.36E-04	-4.25E-03	2.92E-02
8S	-7.24E-05	1.37E-03	-1.74E-03	1.36E-01
1P	-4.59E-07	9.77E-06	4.49E-05	-3.85E-05
2P	1.74E-05	-4.52E-04	2.68E-03	8.87E-03
3P	-1.08E-05	2.67E-04	-1.29E-03	1.93E-03
4P	-1.50E-04	3.86E-03	-2.13E-02	3.75E-02
5P	4.97E-05	-1.24E-03	6.18E-03	4.27E-02
6P	-5.59E-05	1.42E-03	-8.83E-03	6.58E-02
7P	-1.87E-05	5.11E-04	-3.14E-03	5.62E-03
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	-7.77E-08	2.11E-06	-1.16E-05	1.82E-05
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.42E-04	3.49E-03	-2.18E-02	6.16E-02
GLY	-4.10E-05	1.02E-03	-6.37E-03	1.73E-02

255 ^a “124-TMB” represents 1,2,4-trimethylbenzene.

258 **Table S3. (Continued)**

Precursor: 135-TMB NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-2.69E-06	-4.66E-05	2.66E-03	-5.16E-03
3F	6.22E-07	-2.71E-05	2.39E-04	3.61E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	-1.32E-05	2.58E-04	-9.02E-04	7.34E-03
7F	-6.35E-07	7.99E-06	9.86E-05	-1.76E-04
8F	-1.47E-05	3.23E-04	-1.24E-03	2.64E-02
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3M	-2.06E-07	3.04E-06	1.83E-05	-3.50E-05
4M	9.54E-08	-8.83E-05	2.00E-03	-3.47E-03
5M	3.17E-06	-9.15E-05	8.49E-04	-1.20E-03
6M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7M	-1.64E-04	4.51E-03	-4.05E-02	3.10E-01
8M	-6.48E-06	8.91E-05	-1.90E-04	1.26E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4S	-4.02E-05	6.48E-04	3.94E-03	8.01E-03
5S	2.68E-05	-8.37E-04	8.60E-03	-1.21E-02
6S	-7.18E-06	6.27E-05	2.08E-03	9.13E-03
7S	1.20E-04	-3.45E-03	3.05E-02	-1.81E-02
8S	2.97E-06	-6.58E-05	1.70E-04	4.65E-03
1P	-4.08E-06	8.65E-05	-1.36E-04	1.27E-04
2P	5.57E-06	-1.57E-04	1.44E-03	-2.40E-03
3P	6.74E-05	-2.55E-03	3.54E-02	-6.05E-02
4P	-7.72E-05	1.72E-03	-7.23E-03	4.06E-02
5P	1.33E-06	-3.85E-05	3.58E-04	-4.91E-04
6P	5.35E-05	-1.25E-03	9.45E-03	1.71E-01
7P	-5.03E-05	1.37E-03	-1.11E-02	4.60E-02
8P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	7.16E-05	-2.37E-03	1.67E-02	1.38E-01
GLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00

259 ^a “135-TMB” represents 1,3,5-trimethylbenzene.

260

261

Precursor: Ethylbenzene NO _x level: High NO _x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5VF	-5.03E-06	1.29E-04	-9.39E-04	2.03E-03
6VF	-1.73E-05	4.54E-04	-3.51E-03	8.31E-03
7VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8VF	-1.43E-05	3.89E-04	-3.21E-03	9.66E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	5.37E-06	-1.37E-04	1.06E-03	-1.60E-03
4F	1.05E-06	-1.70E-05	2.65E-05	1.63E-03
5F	-1.46E-06	3.98E-05	-3.46E-04	1.09E-03
6F	-2.46E-05	6.54E-04	-5.20E-03	1.37E-02
7F	-1.30E-04	3.43E-03	-2.73E-02	6.65E-02
8F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	2.00E-07	-6.58E-06	7.13E-05	-1.26E-04
3M	-3.36E-04	9.02E-03	-7.42E-02	2.12E-01
4M	5.10E-06	-1.27E-04	8.99E-04	-1.26E-03
5M	8.22E-07	-2.02E-05	1.77E-04	-1.86E-04
6M	1.99E-06	-5.03E-05	3.89E-04	-5.71E-04
7M	-1.13E-04	2.99E-03	-2.37E-02	5.90E-02
8M	-8.48E-05	2.40E-03	-2.09E-02	7.15E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3S	-5.28E-05	9.70E-04	-1.78E-03	-2.95E-04
4S	1.20E-04	-2.48E-03	1.04E-02	3.17E-02
5S	-1.77E-05	6.15E-04	-6.97E-03	3.22E-02
6S	-9.83E-06	2.51E-04	-1.82E-03	3.89E-03
7S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8S	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1P	-4.47E-05	7.90E-04	-1.37E-03	-5.31E-05
2P	3.35E-04	-8.08E-03	5.25E-02	-5.06E-02
3P	1.19E-04	-2.60E-03	1.68E-02	-1.36E-02
4P	1.23E-04	-3.28E-03	2.53E-02	-3.18E-02
5P	-2.05E-04	4.75E-03	-2.68E-02	6.16E-02
6P	3.55E-05	-1.35E-03	1.54E-02	-1.11E-02
7P	-1.78E-04	4.08E-03	-2.15E-02	1.81E-01
8P	1.25E-03	-3.34E-02	2.51E-01	-7.60E-02
1MA	-1.52E-05	4.22E-04	-2.07E-03	2.65E-03
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GLY	-1.35E-04	3.93E-03	-3.56E-02	1.27E-01

Precursor: Propylbenzene NO_x level: High NO_x Aging stats: Aged				
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	-8.40E-07	1.84E-05	-9.05E-05	1.19E-04
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-1.84E-06	5.68E-05	-5.39E-04	2.04E-03
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7VF	1.26E-06	-2.49E-05	1.18E-04	2.18E-04
8VF	-6.68E-06	1.65E-04	-1.31E-03	5.68E-03
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	-1.28E-06	3.25E-05	-3.33E-04	2.10E-03
3F	-3.47E-06	7.01E-05	-3.20E-04	1.04E-03
4F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	3.57E-05	-6.55E-04	6.49E-04	2.61E-02
7F	1.45E-05	-2.79E-04	5.97E-04	7.65E-03
8F	5.11E-06	-8.91E-05	9.58E-06	3.68E-03
1M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2M	-2.75E-07	5.99E-06	-2.69E-05	3.28E-05
3M	2.80E-04	-7.52E-03	5.70E-02	-6.60E-02
4M	-3.11E-06	6.57E-05	-2.99E-04	3.74E-04
5M	-6.81E-06	1.45E-04	-7.49E-04	1.25E-03
6M	-3.07E-06	6.46E-05	-2.75E-04	3.23E-04
7M	3.01E-05	-6.07E-04	2.17E-03	8.41E-03
8M	2.32E-05	-5.58E-04	2.94E-03	1.40E-02
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	-2.23E-06	4.55E-05	-2.09E-04	2.62E-04
3S	9.13E-06	-1.46E-04	2.06E-03	-3.88E-03
4S	6.32E-05	-2.35E-03	2.37E-02	-2.91E-02
5S	6.13E-05	-1.70E-03	1.35E-02	-1.16E-02
6S	-2.04E-05	5.90E-04	-4.26E-03	1.08E-02
7S	3.60E-06	-1.47E-04	1.02E-03	2.87E-02
8S	-3.16E-06	6.46E-05	-3.05E-04	3.89E-04
1P	-6.62E-05	1.46E-03	-6.91E-03	8.79E-03
2P	-3.02E-04	8.06E-03	-6.51E-02	1.81E-01
3P	-9.36E-05	1.98E-03	-1.12E-02	3.12E-02
4P	-9.30E-05	2.41E-03	-1.41E-02	2.36E-02
5P	-8.35E-06	-5.39E-05	4.02E-03	-7.51E-03
6P	-2.19E-04	5.66E-03	-4.29E-02	1.21E-01
7P	-2.34E-04	6.12E-03	-4.50E-02	2.46E-01
8P	-1.42E-04	-2.52E-03	8.99E-02	-9.21E-02
1MA	5.56E-06	-5.78E-05	2.05E-04	-2.30E-04
2MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.14E-07	2.99E-06	-1.48E-05	1.92E-05
GLY	1.46E-04	-3.38E-03	1.82E-02	3.62E-02

Precursor: Terpene	NO _x level: High NO _x		Aging stats: Aged	
Lumped Species	A	B	C	D
1VF	4.83E-07	-4.29E-06	1.39E-05	-1.44E-05
2VF	1.05E-08	-9.08E-08	2.93E-07	-3.05E-07
3VF	-3.29E-07	2.89E-06	1.08E-04	-1.97E-04
4VF	3.47E-08	-3.03E-07	9.80E-07	-1.02E-06
5VF	2.28E-05	-4.91E-04	3.56E-03	-1.90E-03
6VF	3.53E-07	-6.68E-06	4.18E-05	1.67E-05
7VF	-4.40E-07	6.92E-06	1.58E-04	-2.82E-04
8VF	7.14E-08	-5.01E-07	3.81E-06	-5.60E-06
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	2.18E-08	7.95E-07	4.97E-06	-1.15E-05
5F	1.88E-06	-3.88E-05	2.67E-04	-1.21E-04
6F	1.56E-06	-3.27E-05	2.27E-04	-1.01E-04
7F	-7.74E-07	-1.92E-05	5.22E-04	1.17E-02
8F	2.25E-07	-2.77E-06	6.41E-06	9.13E-05
1M	1.60E-06	-1.44E-05	4.64E-05	-4.81E-05
2M	-2.63E-06	3.86E-05	2.53E-04	-5.40E-04
3M	3.12E-06	-2.63E-05	8.21E-05	-8.38E-05
4M	4.82E-05	-1.04E-03	8.16E-03	2.21E-02
5M	1.10E-04	-2.46E-03	2.04E-02	4.86E-03
6M	-2.63E-04	3.01E-03	1.42E-03	3.91E-01
7M	4.81E-05	-9.64E-04	6.22E-03	5.14E-02
8M	2.13E-07	-1.76E-06	5.89E-06	-6.36E-06
1S	2.20E-05	-4.70E-04	3.92E-03	-4.00E-03

Lumped Species	A	B	C	D
2S	2.10E-05	-4.68E-04	4.21E-03	-4.14E-03
3S	1.59E-05	-3.00E-04	3.48E-03	9.24E-03
4S	4.85E-05	-9.65E-04	1.29E-02	3.53E-02
5S	5.00E-05	-1.07E-03	9.80E-03	2.30E-02
6S	-2.78E-05	5.69E-04	-3.51E-03	1.67E-02
7S	-2.25E-06	6.49E-05	-5.98E-04	3.58E-03
8S	6.72E-09	-4.84E-08	1.56E-07	-1.68E-07
1P	-4.43E-07	1.57E-05	-8.52E-05	2.43E-03
2P	-2.60E-06	3.79E-05	9.94E-04	-1.83E-03
3P	2.70E-07	-1.84E-06	8.30E-06	-1.05E-05
4P	4.91E-06	-1.03E-04	5.75E-04	8.21E-03
5P	-2.43E-04	5.17E-03	-3.75E-02	2.43E-01
6P	-1.40E-06	2.98E-05	-1.81E-04	1.42E-03
7P	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8P	1.68E-05	-4.82E-04	6.68E-03	-9.52E-03
1MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2MA	-7.55E-07	2.10E-05	-2.12E-04	2.01E-03
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	2.76E-08	1.05E-07	-5.95E-07	6.39E-07
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	3.64E-06	-7.73E-05	4.30E-04	1.20E-03
GLY	3.91E-07	-7.34E-06	1.15E-04	-1.75E-04

Precursor: Isoprene	NO _x level: High NO _x		Aging stats: Aged	
Lumped Species	A	B	C	D
1VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4VF	-8.65E-10	2.31E-08	-1.12E-07	1.60E-07
5VF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6VF	-3.53E-13	1.31E-11	-7.56E-11	1.14E-10
7VF	1.47E-05	-4.09E-04	4.08E-03	-3.57E-03
8VF	1.12E-06	-2.89E-05	2.34E-04	-2.85E-04
1F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4F	-2.13E-07	5.89E-06	-1.27E-05	2.21E-04
5F	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6F	2.45E-05	-6.59E-04	5.10E-03	-4.88E-03
7F	-8.48E-06	2.17E-04	-1.21E-03	2.12E-03
8F	-2.46E-07	6.52E-06	-3.89E-05	5.74E-05
1M	-1.28E-08	4.80E-07	-1.70E-06	1.12E-05
2M	2.98E-07	-7.11E-06	7.26E-05	-5.07E-05
3M	-5.55E-06	1.35E-04	-6.30E-04	3.27E-03
4M	1.87E-07	-4.75E-06	3.32E-05	-1.51E-05
5M	-4.34E-06	1.05E-04	-5.60E-04	9.19E-04
6M	-2.34E-05	6.07E-04	-3.52E-03	1.00E-02
7M	2.09E-06	-3.76E-05	6.44E-04	2.05E-03
8M	-9.84E-05	2.15E-03	-1.46E-02	1.49E-01
1S	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Lumped Species	A	B	C	D
2S	3.49E-10	-8.48E-09	5.62E-08	-5.84E-08
3S	7.75E-08	-1.85E-06	1.08E-05	6.84E-06
4S	3.50E-06	-9.47E-05	7.72E-04	-9.58E-04
5S	2.10E-07	-6.33E-06	6.85E-05	1.91E-03
6S	-7.48E-06	1.51E-04	-2.50E-05	1.79E-02
7S	-1.54E-05	3.25E-04	-1.48E-03	3.57E-03
8S	-2.09E-05	4.61E-04	-1.18E-03	6.83E-03
1P	-3.30E-06	8.06E-05	-3.14E-04	6.88E-04
2P	-2.96E-07	-5.70E-06	2.28E-04	6.57E-03
3P	-3.30E-07	7.42E-06	-1.78E-05	7.57E-05
4P	-8.51E-07	2.12E-05	-1.31E-04	2.50E-04
5P	-4.46E-06	1.03E-04	-5.82E-04	8.63E-04
6P	7.32E-05	-1.85E-03	1.27E-02	-3.79E-03
7P	-4.84E-05	1.26E-03	-7.51E-03	1.47E-02
8P	-6.78E-06	-3.55E-04	9.27E-03	1.01E-02
1MA	-1.60E-07	3.77E-06	-1.60E-05	2.42E-05
2MA	-1.67E-07	4.18E-06	-1.95E-05	2.87E-05
3MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4MA	2.44E-10	8.36E-09	-7.88E-08	1.33E-07
5MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8MA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MGLY	-1.06E-05	1.74E-04	-2.42E-05	7.27E-03
GLY	1.80E-06	-7.68E-05	9.30E-04	5.12E-03
IEPOX	-1.99E-05	6.00E-04	-3.61E-03	5.38E-03

274 **Table S4. Averaged molecular weight (MW) of lumping species.**

Species Name	MW (g mol ⁻¹)	Species Name	MW (g mol ⁻¹)	Species Name	MW (g mol ⁻¹)
1VF-aromatic	216.0	1VF-terpene	216.0	1VF-isoprene	216.0
2VF-aromatic	199.0	2VF-terpene	199.0	2VF-isoprene	199.0
3VF-aromatic	182.0	3VF-terpene	182.0	3VF-isoprene	182.0
4VF-aromatic	164.0	4VF-terpene	164.0	4VF-isoprene	164.0
5VF-aromatic	147.0	5VF-terpene	147.0	5VF-isoprene	147.0
6VF-aromatic	156.0	6VF-terpene	156.0	6VF-isoprene	156.0
7VF-aromatic	149.0	7VF-terpene	149.0	7VF-isoprene	149.0
8VF-aromatic	95.0	8VF-terpene	95.0	8VF-isoprene	95.0
1F-aromatic	234.0	1F-terpene	234.0	1F-isoprene	234.0
2F-aromatic	217.0	2F-terpene	217.0	2F-isoprene	217.0
3F-aromatic	199.0	3F-terpene	199.0	3F-isoprene	199.0
4F-aromatic	192.0	4F-terpene	192.0	4F-isoprene	192.0
5F-aromatic	163.0	5F-terpene	163.0	5F-isoprene	163.0
6F-aromatic	148.0	6F-terpene	148.0	6F-isoprene	148.0
7F-aromatic	128.0	7F-terpene	128.0	7F-isoprene	128.0
8F-aromatic	110.0	8F-terpene	110.0	8F-isoprene	110.0
1M-aromatic	193.0	1M-terpene	193.0	1M-isoprene	193.0
2M-aromatic	183.0	2M-terpene	183.0	2M-isoprene	183.0
3M-aromatic	172.0	3M-terpene	172.0	3M-isoprene	172.0
4M-aromatic	196.0	4M-terpene	196.0	4M-isoprene	196.0
5M-aromatic	152.0	5M-terpene	152.0	5M-isoprene	152.0
6M-aromatic	141.0	6M-terpene	141.0	6M-isoprene	141.0
7M-aromatic	131.0	7M-terpene	131.0	7M-isoprene	131.0
8M-aromatic	121.0	8M-terpene	121.0	8M-isoprene	121.0
1S-aromatic	207.0	1S-terpene	207.0	1S-isoprene	207.0
2S-aromatic	192.0	2S-terpene	192.0	2S-isoprene	192.0
3S-aromatic	176.0	3S-terpene	176.0	3S-isoprene	176.0
4S-aromatic	160.0	4S-terpene	160.0	4S-isoprene	160.0
5S-aromatic	145.0	5S-terpene	145.0	5S-isoprene	145.0
6S-aromatic	129.0	6S-terpene	129.0	6S-isoprene	129.0
7S-aromatic	113.0	7S-terpene	113.0	7S-isoprene	113.0
8S-aromatic	98.0	8S-terpene	98.0	8S-isoprene	98.0
1P-aromatic	257.0	1P-terpene	257.0	1P-isoprene	257.0
2P-aromatic	232.0	2P-terpene	232.0	2P-isoprene	232.0
3P-aromatic	208.0	3P-terpene	208.0	3P-isoprene	208.0
4P-aromatic	183.0	4P-terpene	183.0	4P-isoprene	183.0
5P-aromatic	158.0	5P-terpene	158.0	5P-isoprene	158.0
6P-aromatic	133.0	6P-terpene	133.0	6P-isoprene	133.0
7P-aromatic	109.0	7P-terpene	109.0	7P-isoprene	109.0
8P-aromatic	84.0	8P-terpene	84.0	8P-isoprene	84.0
1MA-aromatic	257.0	1MA-terpene	257.0	1MA-isoprene	257.0
2MA-aromatic	232.0	2MA-terpene	232.0	2MA-isoprene	232.0
3MA-aromatic	208.0	3MA-terpene	208.0	3MA-isoprene	208.0
4MA-aromatic	183.0	4MA-terpene	183.0	4MA-isoprene	183.0
5MA-aromatic	158.0	5MA-terpene	158.0	5MA-isoprene	158.0
6MA-aromatic	133.0	6MA-terpene	133.0	6MA-isoprene	133.0
7MA-aromatic	109.0	7MA-terpene	109.0	7MA-isoprene	109.0
8MA-aromatic	84.0	8MA-terpene	84.0	8MA-isoprene	84.0
MGLY-aromatic	72.1	MGLY-terpene	72.1	MGLY-isoprene	72.1
GLY-aromatic	58.0	GLY-terpene	58.0	GLY-isoprene	58.0
				IEPOXY-isoprene	118.1

279

275

277

276

278

280

281

282 **Table S5. Averaged Hydrogen bonding parameter (HB) of lumping species.**

Species Name	HB	Species Name	HB	Species Name	HB
1VF-aromatic	1.7	1VF-terpene	3.0	1VF-isoprene	0.0
2VF-aromatic	1.5	2VF-terpene	2.6	2VF-isoprene	0.0
3VF-aromatic	1.3	3VF-terpene	1.0	3VF-isoprene	0.0
4VF-aromatic	1.1	4VF-terpene	2.0	4VF-isoprene	2.0
5VF-aromatic	0.9	5VF-terpene	0.7	5VF-isoprene	0.0
6VF-aromatic	0.1	6VF-terpene	0.0	6VF-isoprene	1.0
7VF-aromatic	0.5	7VF-terpene	0.9	7VF-isoprene	1.0
8VF-aromatic	0.3	8VF-terpene	0.0	8VF-isoprene	0.0
1F-aromatic	1.7	1F-terpene	0.0	1F-isoprene	0.0
2F-aromatic	1.5	2F-terpene	0.0	2F-isoprene	0.0
3F-aromatic	1.2	3F-terpene	0.0	3F-isoprene	0.0
4F-aromatic	0.9	4F-terpene	1.0	4F-isoprene	2.0
5F-aromatic	0.7	5F-terpene	1.0	5F-isoprene	0.0
6F-aromatic	0.4	6F-terpene	1.0	6F-isoprene	1.0
7F-aromatic	0.2	7F-terpene	0.0	7F-isoprene	1.0
8F-aromatic	0.0	8F-terpene	0.0	8F-isoprene	0.0
1M-aromatic	2.0	1M-terpene	3.0	1M-isoprene	4.0
2M-aromatic	1.7	2M-terpene	2.2	2M-isoprene	3.0
3M-aromatic	1.4	3M-terpene	1.1	3M-isoprene	3.0
4M-aromatic	0.9	4M-terpene	1.1	4M-isoprene	2.0
5M-aromatic	0.9	5M-terpene	0.2	5M-isoprene	1.8
6M-aromatic	0.6	6M-terpene	0.0	6M-isoprene	1.9
7M-aromatic	0.3	7M-terpene	0.1	7M-isoprene	1.0
8M-aromatic	0.0	8M-terpene	1.0	8M-isoprene	0.9
1S-aromatic	1.8	1S-terpene	3.7	1S-isoprene	0.0
2S-aromatic	1.5	2S-terpene	3.7	2S-isoprene	2.5
3S-aromatic	1.3	3S-terpene	1.9	3S-isoprene	3.0
4S-aromatic	1.1	4S-terpene	1.5	4S-isoprene	1.0
5S-aromatic	0.9	5S-terpene	1.0	5S-isoprene	2.0
6S-aromatic	0.7	6S-terpene	1.0	6S-isoprene	2.0
7S-aromatic	0.4	7S-terpene	1.1	7S-isoprene	0.9
8S-aromatic	0.2	8S-terpene	1.0	8S-isoprene	1.2
1P-aromatic	2.2	1P-terpene	3.6	1P-isoprene	4.0
2P-aromatic	1.9	2P-terpene	2.8	2P-isoprene	3.9
3P-aromatic	1.6	3P-terpene	3.0	3P-isoprene	2.1
4P-aromatic	1.2	4P-terpene	2.4	4P-isoprene	3.0
5P-aromatic	0.9	5P-terpene	2.0	5P-isoprene	1.5
6P-aromatic	0.5	6P-terpene	1.4	6P-isoprene	1.4
7P-aromatic	0.2	7P-terpene	0.0	7P-isoprene	2.0
8P-aromatic	0.0	8P-terpene	0.8	8P-isoprene	0.8
1MA-aromatic	2.2	1MA-terpene	0.0	1MA-isoprene	5.0
2MA-aromatic	1.9	2MA-terpene	3.0	2MA-isoprene	4.0
3MA-aromatic	1.6	3MA-terpene	0.0	3MA-isoprene	0.0
4MA-aromatic	1.2	4MA-terpene	1.0	4MA-isoprene	3.0
5MA-aromatic	0.9	5MA-terpene	0.0	5MA-isoprene	0.0
6MA-aromatic	0.5	6MA-terpene	0.0	6MA-isoprene	0.0
7MA-aromatic	0.2	7MA-terpene	0.0	7MA-isoprene	0.0
8MA-aromatic	0.0	8MA-terpene	0.0	8MA-isoprene	0.0
MGLY-aromatic	0.0	MGLY-terpene	0.0	MGLY-isoprene	0.0
GLY-aromatic	0.0	GLY-terpene	0.0	GLY-isoprene	0.0
				IEPOXY-isoprene	2.0

289

283

286

284

287

285

288

290

291 **Table S6. Averaged Oxygen to carbon ratio (O:C) of lumping species.**

Species Name	O:C	Species Name	O:C	Species Name	O:C
1VF-aromatic	0.9	1VF-terpene	0.8	1VF-isoprene	0.4
2VF-aromatic	0.9	2VF-terpene	1.2	2VF-isoprene	0.4
3VF-aromatic	0.9	3VF-terpene	1.6	3VF-isoprene	0.4
4VF-aromatic	0.8	4VF-terpene	1.3	4VF-isoprene	1.6
5VF-aromatic	0.8	5VF-terpene	0.7	5VF-isoprene	0.4
6VF-aromatic	0.4	6VF-terpene	0.7	6VF-isoprene	1.0
7VF-aromatic	0.5	7VF-terpene	0.8	7VF-isoprene	1.0
8VF-aromatic	0.7	8VF-terpene	0.8	8VF-isoprene	0.8
1F-aromatic	1.0	1F-terpene	0.4	1F-isoprene	0.4
2F-aromatic	1.0	2F-terpene	0.4	2F-isoprene	0.4
3F-aromatic	0.9	3F-terpene	0.4	3F-isoprene	0.4
4F-aromatic	0.7	4F-terpene	0.3	4F-isoprene	1.0
5F-aromatic	0.8	5F-terpene	0.5	5F-isoprene	0.4
6F-aromatic	0.4	6F-terpene	0.7	6F-isoprene	1.0
7F-aromatic	0.7	7F-terpene	0.6	7F-isoprene	0.8
8F-aromatic	0.7	8F-terpene	0.7	8F-isoprene	0.8
1M-aromatic	1.2	1M-terpene	0.6	1M-isoprene	0.9
2M-aromatic	1.1	2M-terpene	0.5	2M-isoprene	1.3
3M-aromatic	1.1	3M-terpene	0.5	3M-isoprene	1.0
4M-aromatic	1.0	4M-terpene	0.5	4M-isoprene	0.9
5M-aromatic	0.9	5M-terpene	0.6	5M-isoprene	0.7
6M-aromatic	0.8	6M-terpene	0.2	6M-isoprene	0.8
7M-aromatic	0.7	7M-terpene	0.7	7M-isoprene	0.9
8M-aromatic	0.6	8M-terpene	1.3	8M-isoprene	0.5
1S-aromatic	0.9	1S-terpene	1.1	1S-isoprene	0.4
2S-aromatic	0.9	2S-terpene	1.0	2S-isoprene	0.9
3S-aromatic	0.9	3S-terpene	0.7	3S-isoprene	1.0
4S-aromatic	0.9	4S-terpene	0.5	4S-isoprene	0.6
5S-aromatic	0.8	5S-terpene	0.6	5S-isoprene	1.4
6S-aromatic	0.8	6S-terpene	0.3	6S-isoprene	1.1
7S-aromatic	0.8	7S-terpene	0.9	7S-isoprene	1.0
8S-aromatic	0.8	8S-terpene	0.6	8S-isoprene	1.1
1P-aromatic	1.2	1P-terpene	0.8	1P-isoprene	1.0
2P-aromatic	1.1	2P-terpene	0.5	2P-isoprene	0.9
3P-aromatic	0.9	3P-terpene	0.9	3P-isoprene	1.3
4P-aromatic	0.8	4P-terpene	0.5	4P-isoprene	1.0
5P-aromatic	0.7	5P-terpene	0.3	5P-isoprene	1.4
6P-aromatic	0.5	6P-terpene	1.5	6P-isoprene	0.8
7P-aromatic	0.4	7P-terpene	0.4	7P-isoprene	0.7
8P-aromatic	0.2	8P-terpene	1.7	8P-isoprene	0.6
1MA-aromatic	1.2	1MA-terpene	0.4	1MA-isoprene	1.2
2MA-aromatic	1.1	2MA-terpene	0.6	2MA-isoprene	1.1
3MA-aromatic	0.9	3MA-terpene	0.4	3MA-isoprene	0.4
4MA-aromatic	0.8	4MA-terpene	0.7	4MA-isoprene	1.0
5MA-aromatic	0.7	5MA-terpene	0.4	5MA-isoprene	0.4
6MA-aromatic	0.5	6MA-terpene	0.4	6MA-isoprene	0.4
7MA-aromatic	0.4	7MA-terpene	0.4	7MA-isoprene	0.4
8MA-aromatic	0.2	8MA-terpene	0.4	8MA-isoprene	0.4
MGLY-aromatic	0.7	MGLY-terpene	0.7	MGLY-isoprene	0.7
GLY-aromatic	1.0	GLY-terpene	1.0	GLY-isoprene	1.0
				IEPOXY-isoprene	1.7

298

292

295

293

296

294

297

299

300 **Table S7. Reactivity scale (*R*) of lumping species.**

Species Name	<i>R</i>	Species Name	<i>R</i>	Species Name	<i>R</i>
1VF-aromatic	8.5	1VF-terpene	8.5	1VF-isoprene	8.5
2VF-aromatic	8.5	2VF-terpene	8.5	2VF-isoprene	8.5
3VF-aromatic	8.5	3VF-terpene	8.5	3VF-isoprene	8.5
4VF-aromatic	8.5	4VF-terpene	8.5	4VF-isoprene	8.5
5VF-aromatic	8.5	5VF-terpene	8.5	5VF-isoprene	8.5
6VF-aromatic	8.5	6VF-terpene	8.5	6VF-isoprene	8.5
7VF-aromatic	8.5	7VF-terpene	8.5	7VF-isoprene	8.5
8VF-aromatic	8.5	8VF-terpene	8.5	8VF-isoprene	8.5
1F-aromatic	8.2	1F-terpene	8.2	1F-isoprene	8.2
2F-aromatic	8.2	2F-terpene	8.2	2F-isoprene	8.2
3F-aromatic	8.2	3F-terpene	8.2	3F-isoprene	8.2
4F-aromatic	8.2	4F-terpene	8.2	4F-isoprene	8.2
5F-aromatic	8.2	5F-terpene	8.2	5F-isoprene	8.2
6F-aromatic	8.2	6F-terpene	8.2	6F-isoprene	8.2
7F-aromatic	8.2	7F-terpene	8.2	7F-isoprene	8.2
8F-aromatic	8.2	8F-terpene	8.2	8F-isoprene	8.2
1M-aromatic	4.0	1M-terpene	4.0	1M-isoprene	4.0
2M-aromatic	4.0	2M-terpene	4.0	2M-isoprene	4.0
3M-aromatic	4.0	3M-terpene	4.0	3M-isoprene	4.0
4M-aromatic	4.0	4M-terpene	4.0	4M-isoprene	4.0
5M-aromatic	4.0	5M-terpene	4.0	5M-isoprene	4.0
6M-aromatic	4.0	6M-terpene	4.0	6M-isoprene	4.0
7M-aromatic	4.0	7M-terpene	4.0	7M-isoprene	4.0
8M-aromatic	4.0	8M-terpene	4.0	8M-isoprene	4.0
1S-aromatic	1.0	1S-terpene	1.0	1S-isoprene	1.0
2S-aromatic	1.0	2S-terpene	1.0	2S-isoprene	1.0
3S-aromatic	1.0	3S-terpene	1.0	3S-isoprene	1.0
4S-aromatic	1.0	4S-terpene	1.0	4S-isoprene	1.0
5S-aromatic	1.0	5S-terpene	1.0	5S-isoprene	1.0
6S-aromatic	1.0	6S-terpene	1.0	6S-isoprene	1.0
7S-aromatic	1.0	7S-terpene	1.0	7S-isoprene	1.0
8S-aromatic	1.0	8S-terpene	1.0	8S-isoprene	1.0
1P-aromatic	0.0	1P-terpene	0.0	1P-isoprene	0.0
2P-aromatic	0.0	2P-terpene	0.0	2P-isoprene	0.0
3P-aromatic	0.0	3P-terpene	0.0	3P-isoprene	0.0
4P-aromatic	0.0	4P-terpene	0.0	4P-isoprene	0.0
5P-aromatic	0.0	5P-terpene	0.0	5P-isoprene	0.0
6P-aromatic	0.0	6P-terpene	0.0	6P-isoprene	0.0
7P-aromatic	0.0	7P-terpene	0.0	7P-isoprene	0.0
8P-aromatic	0.0	8P-terpene	0.0	8P-isoprene	0.0
1MA-aromatic	0.0	1MA-terpene	0.0	1MA-isoprene	0.0
2MA-aromatic	0.0	2MA-terpene	0.0	2MA-isoprene	0.0
3MA-aromatic	0.0	3MA-terpene	0.0	3MA-isoprene	0.0
4MA-aromatic	0.0	4MA-terpene	0.0	4MA-isoprene	0.0
5MA-aromatic	0.0	5MA-terpene	0.0	5MA-isoprene	0.0
6MA-aromatic	0.0	6MA-terpene	0.0	6MA-isoprene	0.0
7MA-aromatic	0.0	7MA-terpene	0.0	7MA-isoprene	0.0
8MA-aromatic	0.0	8MA-terpene	0.0	8MA-isoprene	0.0
MGLY-aromatic	9.0	MGLY-terpene	9.0	MGLY-isoprene	9.0
GLY-aromatic	12.5	GLY-terpene	12.5	GLY-isoprene	12.5
				IEPOXY-isoprene	2

307

301

304

302

305

303

306

308

309 **Table S8. The basicity constant (pK_{BH}) of lumping species.**

Species Name	pK_{BH}	Species Name	pK_{BH}	Species Name	pK_{BH}
1VF-aromatic	-1.5	1VF-terpene	-1.5	1VF-isoprene	-1.5
2VF-aromatic	-1.5	2VF-terpene	-1.5	2VF-isoprene	-1.5
3VF-aromatic	-1.5	3VF-terpene	-1.5	3VF-isoprene	-1.5
4VF-aromatic	-1.5	4VF-terpene	-1.5	4VF-isoprene	-1.5
5VF-aromatic	-1.5	5VF-terpene	-1.5	5VF-isoprene	-1.5
6VF-aromatic	-1.5	6VF-terpene	-1.5	6VF-isoprene	-1.5
7VF-aromatic	-1.5	7VF-terpene	-1.5	7VF-isoprene	-1.5
8VF-aromatic	-1.5	8VF-terpene	-1.5	8VF-isoprene	-1.5
1F-aromatic	-1.5	1F-terpene	-1.5	1F-isoprene	-1.5
2F-aromatic	-1.5	2F-terpene	-1.5	2F-isoprene	-1.5
3F-aromatic	-1.5	3F-terpene	-1.5	3F-isoprene	-1.5
4F-aromatic	-1.5	4F-terpene	-1.5	4F-isoprene	-1.5
5F-aromatic	-1.5	5F-terpene	-1.5	5F-isoprene	-1.5
6F-aromatic	-1.5	6F-terpene	-1.5	6F-isoprene	-1.5
7F-aromatic	-1.5	7F-terpene	-1.5	7F-isoprene	-1.5
8F-aromatic	-1.5	8F-terpene	-1.5	8F-isoprene	-1.5
1M-aromatic	-1.5	1M-terpene	-1.5	1M-isoprene	-1.5
2M-aromatic	-1.5	2M-terpene	-1.5	2M-isoprene	-1.5
3M-aromatic	-1.5	3M-terpene	-1.5	3M-isoprene	-1.5
4M-aromatic	-1.5	4M-terpene	-1.5	4M-isoprene	-1.5
5M-aromatic	-1.5	5M-terpene	-1.5	5M-isoprene	-1.5
6M-aromatic	-1.5	6M-terpene	-1.5	6M-isoprene	-1.5
7M-aromatic	-1.5	7M-terpene	-1.5	7M-isoprene	-1.5
8M-aromatic	-1.5	8M-terpene	-1.5	8M-isoprene	-1.5
1S-aromatic	-2.0	1S-terpene	-2.0	1S-isoprene	-2.0
2S-aromatic	-2.0	2S-terpene	-2.0	2S-isoprene	-2.0
3S-aromatic	-2.0	3S-terpene	-2.0	3S-isoprene	-2.0
4S-aromatic	-2.0	4S-terpene	-2.0	4S-isoprene	-2.0
5S-aromatic	-2.0	5S-terpene	-2.0	5S-isoprene	-2.0
6S-aromatic	-2.0	6S-terpene	-2.0	6S-isoprene	-2.0
7S-aromatic	-2.0	7S-terpene	-2.0	7S-isoprene	-2.0
8S-aromatic	-2.0	8S-terpene	-2.0	8S-isoprene	-2.0
1P-aromatic	0.0	1P-terpene	0.0	1P-isoprene	0.0
2P-aromatic	0.0	2P-terpene	0.0	2P-isoprene	0.0
3P-aromatic	0.0	3P-terpene	0.0	3P-isoprene	0.0
4P-aromatic	0.0	4P-terpene	0.0	4P-isoprene	0.0
5P-aromatic	0.0	5P-terpene	0.0	5P-isoprene	0.0
6P-aromatic	0.0	6P-terpene	0.0	6P-isoprene	0.0
7P-aromatic	0.0	7P-terpene	0.0	7P-isoprene	0.0
8P-aromatic	0.0	8P-terpene	0.0	8P-isoprene	0.0
1MA-aromatic	-2.0	1MA-terpene	-2.0	1MA-isoprene	-2.0
2MA-aromatic	-2.0	2MA-terpene	-2.0	2MA-isoprene	-2.0
3MA-aromatic	-2.0	3MA-terpene	-2.0	3MA-isoprene	-2.0
4MA-aromatic	-2.0	4MA-terpene	-2.0	4MA-isoprene	-2.0
5MA-aromatic	-2.0	5MA-terpene	-2.0	5MA-isoprene	-2.0
6MA-aromatic	-2.0	6MA-terpene	-2.0	6MA-isoprene	-2.0
7MA-aromatic	-2.0	7MA-terpene	-2.0	7MA-isoprene	-2.0
8MA-aromatic	-2.0	8MA-terpene	-2.0	8MA-isoprene	-2.0
MGLY-aromatic	-1.5	MGLY-terpene	-1.5	MGLY-isoprene	-1.5
GLY-aromatic	-1.5	GLY-terpene	-1.5	GLY-isoprene	-1.5
				IEPOXY-isoprene	-1.5

316

310

313

311

314

312

315

317

318 **Reference**

- 319 Beardsley, R. L., and Jang, M.: Simulating the SOA formation of isoprene from partitioning and aerosol
320 phase reactions in the presence of inorganics, *Atmospheric Chemistry & Physics*, 16, 2016.
- 321 Han, S., and Jang, M.: Simulating the impact of gas-wall partitioning on SOA formation using the explicit
322 gas mechanism integrated with aqueous reactions containing electrolytes, *Science of the Total*
323 *Environment*, 748, 141360, 2020.
- 324 Han, S., and Jang, M.: Prediction of Secondary Organic Aerosol from the Multiphase Reaction of Gasoline
325 Vapor by Using Volatility–Reactivity Base Lumping, *Atmos. Chem. Phys. Discuss.*, 2021, 1-22,
326 10.5194/acp-2021-649, 2021.
- 327 Im, Y., Jang, M., and Beardsley, R.: Simulation of aromatic SOA formation using the lumping model
328 integrated with explicit gas-phase kinetic mechanisms and aerosol-phase reactions, *Atmospheric*
329 *Chemistry & Physics*, 14, 2014.
- 330 Jang, M., Czoschke, N. M., and Northcross, A. L.: Semiempirical Model for Organic Aerosol Growth by
331 Acid-Catalyzed Heterogeneous Reactions of Organic Carbonyls, *Environ Sci Technol*, 39, 164-174,
332 10.1021/es048977h, 2005.
- 333 Yu, Z., Jang, M., Zhang, T., Madhu, A., and Han, S.: Simulation of Monoterpene SOA Formation by
334 Multiphase Reactions Using Explicit Mechanisms, *Acs Earth Space Chem*, 5, 1455-1467,
335 10.1021/acsearthspacechem.1c00056, 2021.
- 336 Zhou, C. F., Jang, M., and Yu, Z. C.: Simulation of SOA Formation From the Photooxidation of
337 Monoalkylbenzenes in the Presence of Aqueous Aerosols Containing Electrolytes Under Various NO_x
338 Levels, *Atmos Chem Phys*, 19, 5719-5735, 10.5194/acp-19-5719-2019, 2019.
- 339 Zuend, A., Marcolli, C., Booth, A., Lienhard, D., Soonsin, V., Krieger, U., Topping, D., McFiggans, G., Peter,
340 T., and Seinfeld, J.: New and extended parameterization of the thermodynamic model AIOMFAC:
341 calculation of activity coefficients for organic-inorganic mixtures containing carboxyl, hydroxyl, carbonyl,
342 ether, ester, alkenyl, alkyl, and aromatic functional groups, *Atmos Chem Phys*, 11, 9155-9206, 2011.

343