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Volatility of aerosol particles from NO_3 oxidation of various biogenic organic precursors

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Table S1. Overview of the model input (apart from the volatility distributions) and diffusion volumes.

General settings		
Density, ρ	(kg m^{-3})	1200
Surface tension, σ	(N m^{-1})	0.3
Diffusion coefficient, D	(10^{-6} m^2 s^{-1})	5
Temperature dependent factor for D, μ	(-)	1.75
Accommodation coefficient, α_m	(-)	1
Atomic and structural diffusion volumes		
C	15.9	
H	2.31	
O	6.11	
N	4.54	
Aromatic ring	-18.3	
Heterocyclic ring	-18.3	
Air	19.7	

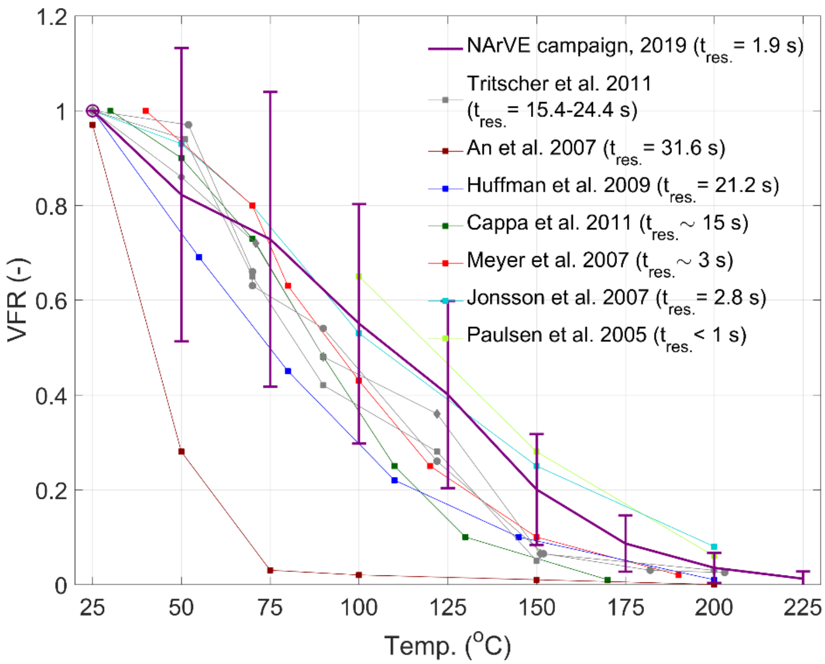


Figure S1. Measured VFRs of α-pinene ozonolysis vs. temperature and comparison to literature, based on different residence times within the TD.

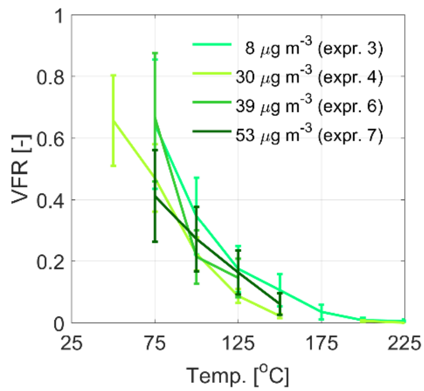


Figure S2. VFR as a function of VTDMA temperature for four different initial mass loadings from the nitrate oxidation of α-pinene.

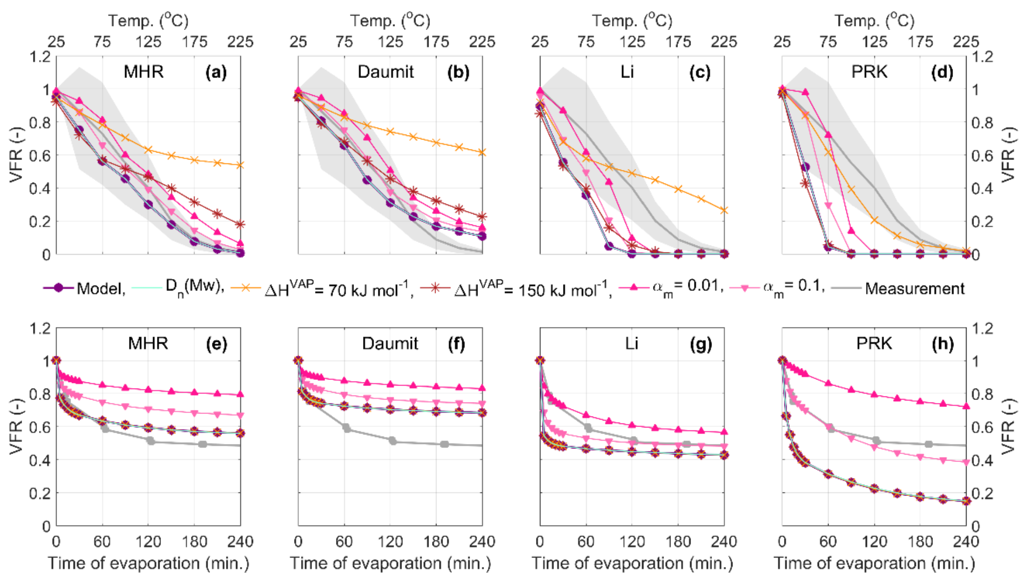


Figure S3. Sensitivity study for the thermodenuder- (upper row, panels a, b, c and d) and isothermal evaporation model (lower row, panels e, f, g and h) based on α-pinene ozonolysis with a fixed vaporization enthalpy, ΔH^{VAP} = 70 kJ/mol (yellow), reduced accommodation (α_m, set to be either 0.1 or 0.01 (pink)), and a mass-dependent diffusion coefficient (cyan). The original model output is presented in purple together with the measurements displayed in grey.

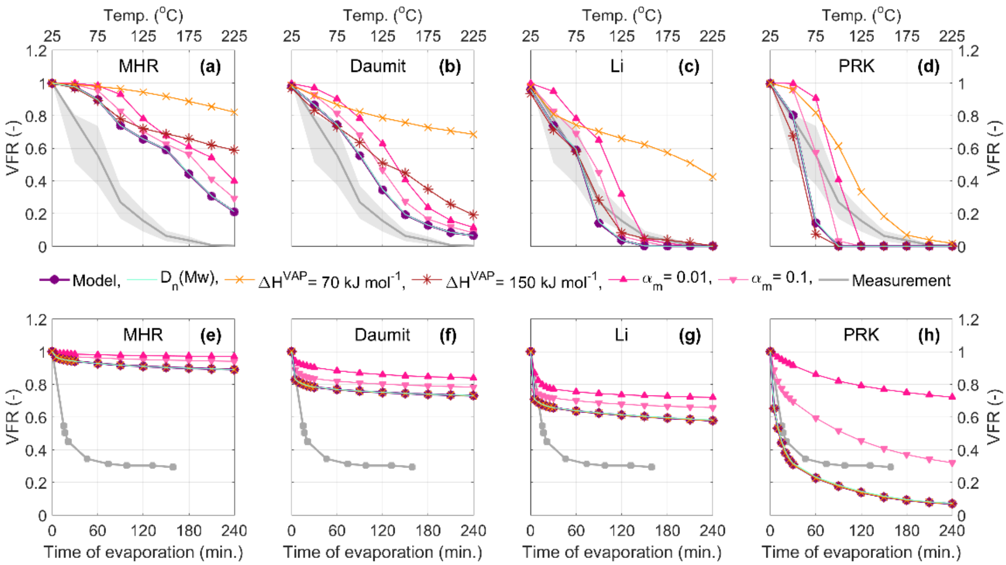


Figure S4. Sensitivity study for the thermodenuder- (upper row, panels a, b, c and d) and isothermal evaporation model (lower row, panels e, f, g and h) based on α-pinene + NO_3 with a fixed vaporization enthalpy, ΔH^{VAP} = 70 kJ/mol (yellow), reduced accommodation (α_m, set to be either 0.1 or 0.01 (pink)), and a mass-dependent diffusion coefficient (cyan). The original model output is presented in purple together with the measurements displayed in grey.

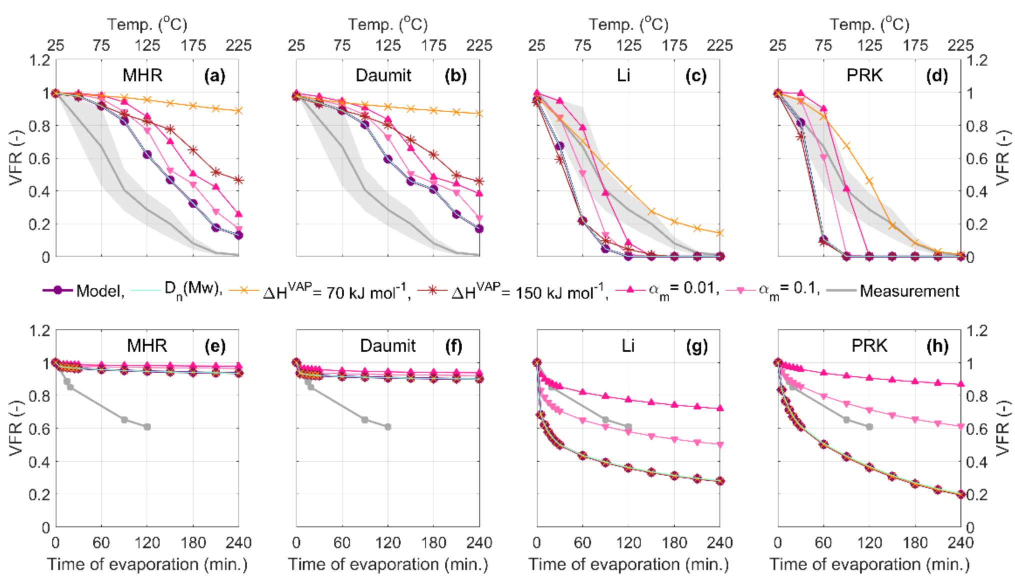


Figure S5. Sensitivity study for the thermodenuder- (upper row, panels a, b, c and d) and isothermal evaporation model (lower row, panels e, f, g and h) based on isoprene + NO_3 with a fixed vaporization enthalpy, ΔH^{VAP} = 70 kJ/mol (yellow), reduced accommodation (α_m, set to be either 0.1 or 0.01 (pink)), and a mass-dependent diffusion coefficient (cyan). The original model output is presented in purple together with the measurements displayed in grey.

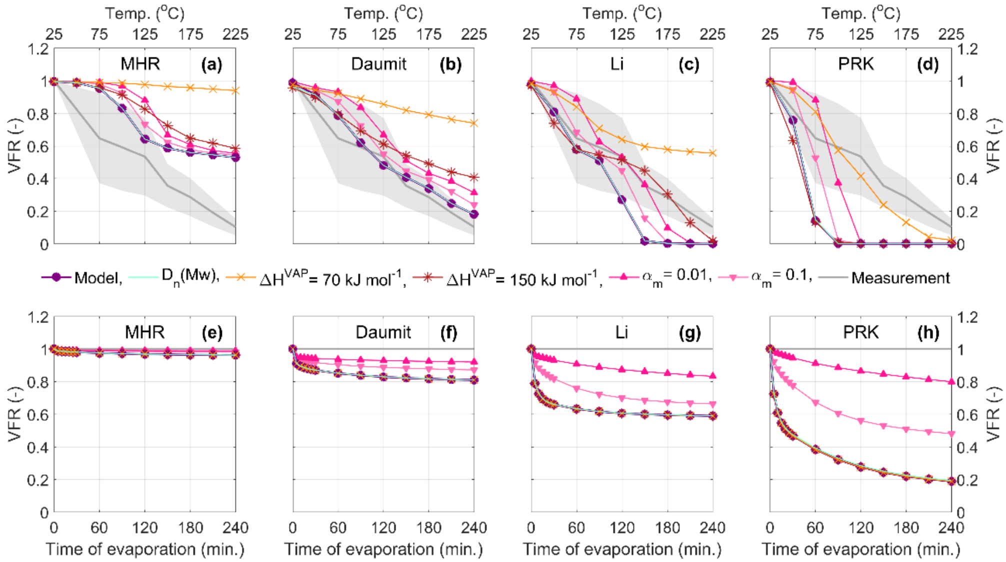


Figure S6. Sensitivity study for the thermodenuder- (upper row, panels a, b, c and d) and isothermal evaporation model (lower row, panels e, f, g and h) based on β-caryophyllene + NO_3 with a fixed vaporization enthalpy, ΔH^{VAP} = 70 kJ/mol (yellow), reduced accommodation (α_m, set to be either 0.1 or 0.01 (pink)), and a mass-dependent diffusion coefficient (cyan). The original model output is presented in purple together with the measurements displayed in grey.

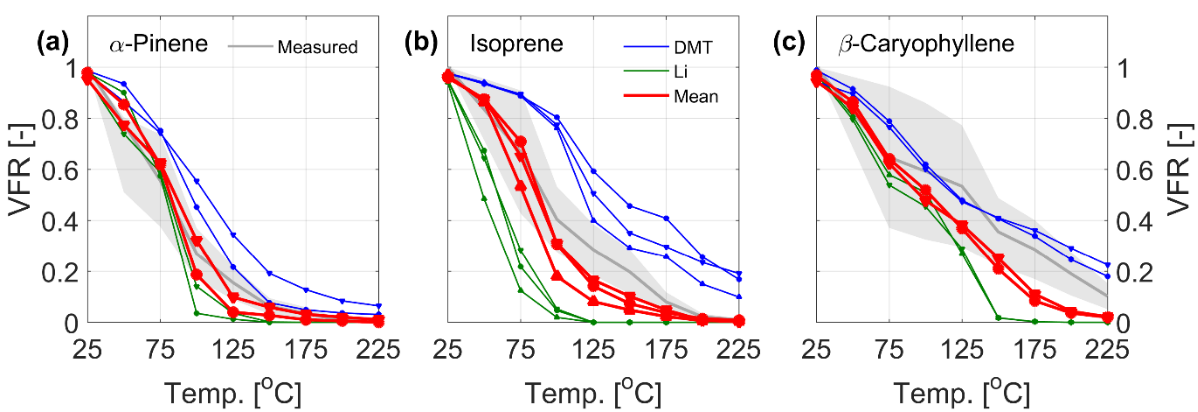


Figure S7. Comparison of the evaporation in the VTDMA system for the DMT (blue) and Li (green) methods, as well as their average (red).

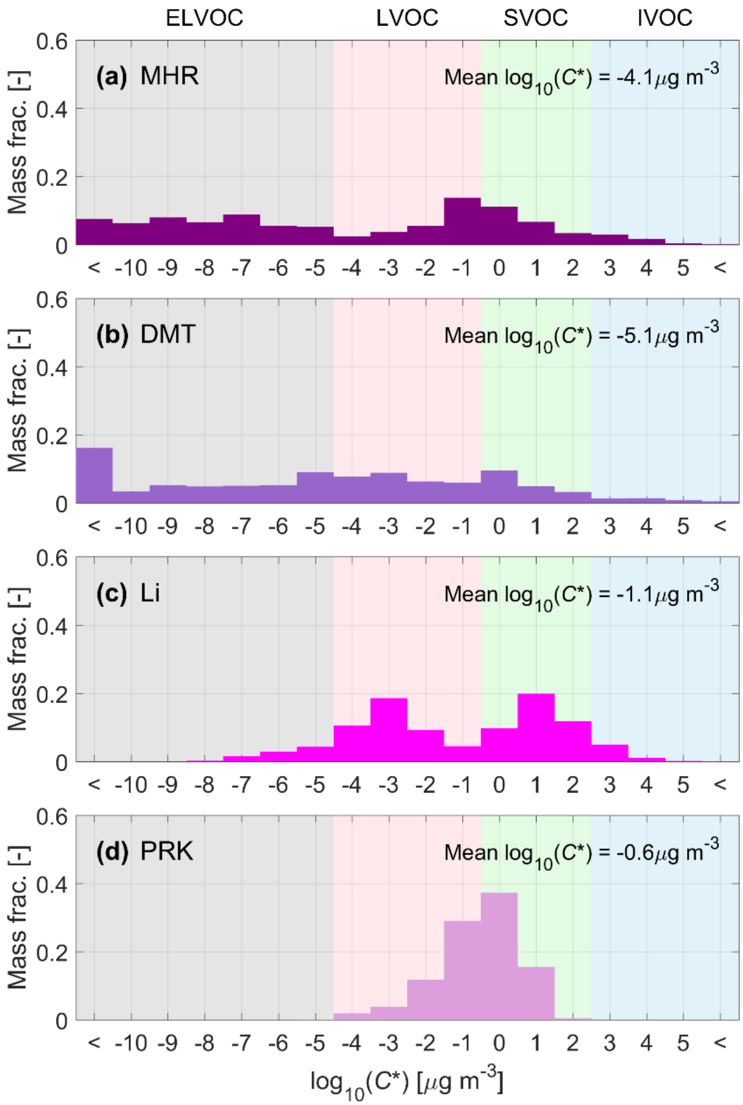


Figure S8. Volatility distributions in the form of VBS as derived from the molecular composition for α-pinene ozonolysis, presented for each parameterization separately; (a) MHR: Mohr et al., 2019 (b) DMT: modified Daumit et al., 2013 (c) Li: modified Li et al., 2016 and (d) PRK: Peräkylä et al., 2020).

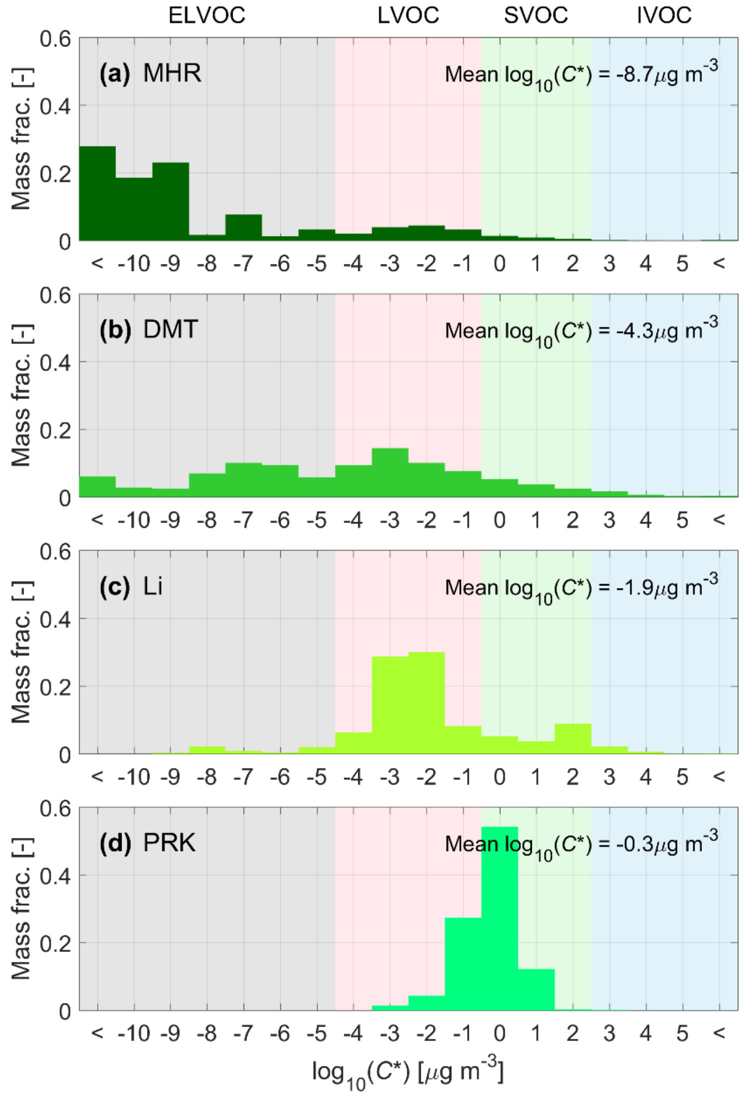
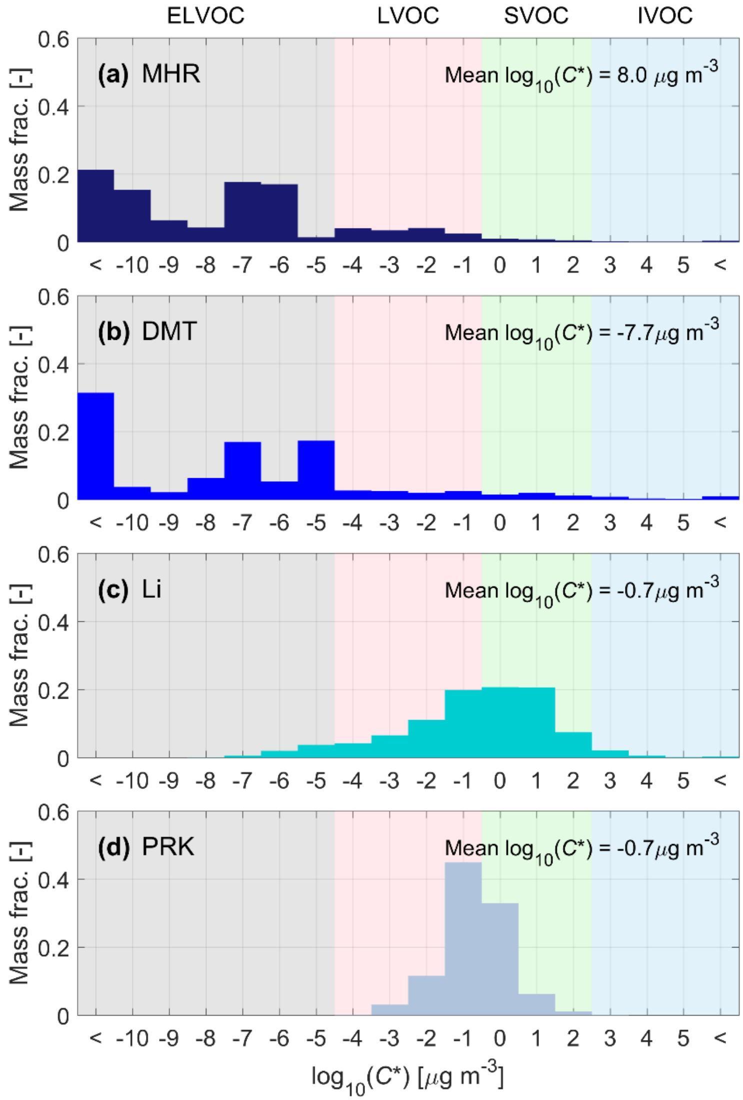


Figure S9. Volatility distributions in the form of VBS as derived from the molecular composition for the nitrate oxidation of α-pinene, presented for each parameterization separately; (a) MHR: Mohr et al., 2019 (b) DMT: modified Daumit et al., 2013 (c) Li: modified Li et al., 2016 and (d) PRK: Peräkylä et al., 2020).



50 **Figure S10. Volatility distributions in the form of VBS as derived from the molecular composition for the nitrate oxidation of isoprene, presented for each parameterization separately; (a) MHR: Mohr et al., 2019 (b) DMT: modified Daumit et al., 2013 (c) Li: modified Li et al., 2016 and (d) PRK: Peräkylä et al., 2020).**

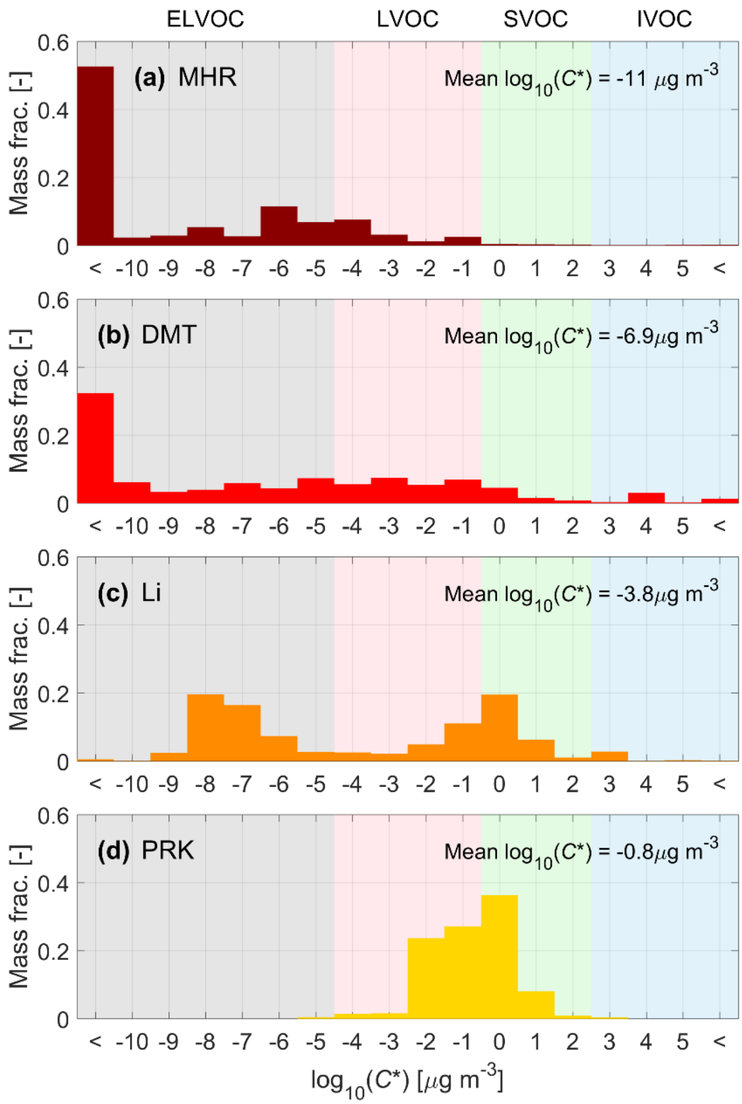


Figure S11. Volatility distributions in the form of VBS as derived from the molecular composition for the nitrate oxidation of β-caryophyllene, presented for each parameterization separately; (a) MHR: Mohr et al., 2019 (b) DMT: modified Daumit et al., 2013 (c) Li: modified Li et al., 2016 and (d) PRK: Peräkylä et al., 2020).