- (3) Jimenez, J. L.; Canagaratna, M. R.; Donahue, N. M.; Prevot, A. S. H.; Zhang, Q.; Kroll, J. H.; DeCarlo, P. F.; Allan, J. D.; Coe, H.; Ng, N. L.; Aiken, A. C.; Docherty, K. S.; Ulbrich, I. M.; Grieshop, A. P.; Robinson, A. L.; Duplissy, J.; Smith, J. D.; Wilson, K. R.; Lanz, V. A.; Hueglin, C.; Sun, Y. L.; Tian, J.; Laaksonen, A.; Raatikainen, T.; Rautiainen, J.; Vaattovaara, P.; Ehn, M.; Kulmala, M.; Tomlinson, J. M.; Collins, D. R.; Cubison, M. J.; Dunlea, J.; Huffman, J. A.; Onasch, T. B.; Alfarra, M. R.; Williams, P. I.; Bower, K.; Kondo, Y.; Schneider, J.; Drewnick, F.; Borrmann, S.; Weimer, S.; Demerjian, K.; Salcedo, D.; Cottrell, L.; Griffin, R.; Takami, A.; Miyoshi, T.; Hatakeyama, S.; Shimono, A.; Sun, J. Y.; Zhang, Y. M.; Dzepina, K.; Kimmel, J. R.; Sueper, D.; Jayne, J. T.; Herndon, S. C.; Trimborn, A. M.; Williams, L. R.; Wood, E. C.; Middlebrook, A. M.; Kolb, C. E.; Baltensperger, U.; Worsnop, D. R. Evolution of Organic Aerosols in the Atmosphere. Science 2009, 326 (5959), 1525–1529.
- (4) de Gouw, J. A.; Middlebrook, A. M.; Warneke, C.; Goldan, P. D.; Kuster, W. C.; Roberts, J. M.; Fehsenfeld, F. C.; Worsnop, D. R.; Canagaratna, M. R.; Pszenny, A. A. P.; Keene, W. C.; Marchewka, M.; Bertman, S. B.; Bates, T. S. Budget of organic carbon in a polluted atmosphere: Results from the New England Air Quality Study in 2002. *J. Geophys. Res.* 2005, 110 (D16), D16305.
- (5) Hodzic, A.; Jimenez, J. L.; Madronich, S.; Canagaratna, M. R.; DeCarlo, P. F.; Kleinman, L.; Fast, J. Modeling organic aerosols in a megacity: potential contribution of semi-volatile and intermediate volatility primary organic compounds to secondary organic aerosol formation. *Atmos. Chem. Phys.* **2010**, *10* (12), 5491–5514.
- (6) Volkamer, R.; Jimenez, J. L.; San Martini, F.; Dzepina, K.; Zhang, Q.; Salcedo, D.; Molina, L. T.; Worsnop, D. R.; Molina, M. J. Secondary organic aerosol formation from anthropogenic air pollution: Rapid and higher than expected. *Geophys. Res. Lett.* **2006**, 33 (17), L17811.
- (7) Allan, J. D.; Williams, P. I.; Morgan, W. T.; Martin, C. L.; Flynn, M. J.; Lee, J.; Nemitz, E.; Phillips, G. J.; Gallagher, M. W.; Coe, H. Contributions from transport, solid fuel burning and cooking to primary organic aerosols in two UK cities. *Atmos. Chem. Phys.* **2010**, *10* (2), 647–668.
- (8) Sun, Y. L.; Zhang, Q.; Schwab, J. J.; Demerjian, K. L.; Chen, W. N.; Bae, M. S.; Hung, H. M.; Hogrefe, O.; Frank, B.; Rattigan, O. V.; Lin, Y. C. Characterization of the sources and processes of organic and inorganic aerosols in New York city with a high-resolution time-of-flight aerosol mass apectrometer. *Atmos. Chem. Phys.* **2011**, *11* (4), 1581–1602.
- (9) Crippa, M.; DeCarlo, P. F.; Slowik, J. G.; Mohr, C.; Heringa, M. F.; Chirico, R.; Poulain, L.; Freutel, F.; Sciare, J.; Cozic, J.; Di Marco, C. F.; Elsasser, M.; Nicolas, J. B.; Marchand, N.; Abidi, E.; Wiedensohler, A.; Drewnick, F.; Schneider, J.; Borrmann, S.; Nemitz, E.; Zimmermann, R.; Jaffrezo, J. L.; Prévôt, A. S. H.; Baltensperger, U. Wintertime aerosol chemical composition and source apportionment of the organic fraction in the metropolitan area of Paris. Atmos. Chem. Phys. 2013, 13 (2), 961–981.
- (10) Lee, B. P.; Li, Y. J.; Yu, J. Z.; Louie, P. K. K.; Chan, C. K. Characteristics of submicron particulate matter at the urban roadside in downtown Hong Kong—Overview of 4 months of continuous high-resolution aerosol mass spectrometer measurements. *J. Geophys. Res.: Atmos.* **2015**, *120* (14), 7040.
- (11) Sun, Y. L.; Zhang, Q.; Schwab, J. J.; Chen, W. N.; Bae, M. S.; Hung, H. M.; Lin, Y. C.; Ng, N. L.; Jayne, J.; Massoli, P.; Williams, L. R.; Demerjian, K. L. Characterization of near-highway submicron aerosols in New York City with a high-resolution aerosol mass spectrometer. *Atmos. Chem. Phys.* **2012**, *12* (4), 2215–2227.
- (12) Mohr, C.; DeCarlo, P. F.; Heringa, M. F.; Chirico, R.; Slowik, J. G.; Richter, R.; Reche, C.; Alastuey, A.; Querol, X.; Seco, R.; Peñuelas, J.; Jiménez, J. L.; Crippa, M.; Zimmermann, R.; Baltensperger, U.; Prévôt, A. S. H. Identification and quantification of organic aerosol from cooking and other sources in Barcelona using aerosol mass spectrometer data. *Atmos. Chem. Phys.* **2012**, *12* (4), 1649–1665.
- (13) Ge, X.; Setyan, A.; Sun, Y.; Zhang, Q. Primary and secondary organic aerosols in Fresno, California during wintertime: Results from

- high resolution aerosol mass spectrometry. J. Geophys. Res.: Atmos. 2012, 117 (D19), D19301.
- (14) Fullana, A.; Carbonell-Barrachina, A. A.; Sidhu, S. Comparison of Volatile Aldehydes Present in the Cooking Fumes of Extra Virgin Olive, Olive, and Canola Oils. *J. Agric. Food Chem.* **2004**, *52* (16), 5207–5214.
- (15) Katragadda, H. R.; Fullana, A.; Sidhu, S.; Carbonell-Barrachina, Á. A. Emissions of volatile aldehydes from heated cooking oils. *Food Chem.* **2010**, *120* (1), 59–65.
- (16) Klein, F.; Platt, S. M.; Farren, N. J.; Detournay, A.; Bruns, E. A.; Bozzetti, C.; Daellenbach, K. R.; Kilic, D.; Kumar, N. K.; Pieber, S. M.; Slowik, J. G.; Temime-Roussel, B.; Marchand, N.; Hamilton, J. F.; Baltensperger, U.; Prévôt, A. S. H.; El Haddad, I. Characterization of Gas-Phase Organics Using Proton Transfer Reaction Time-of-Flight Mass Spectrometry: Cooking Emissions. *Environ. Sci. Technol.* **2016**, 50 (3), 1243–1250.
- (17) Schauer, J. J.; Kleeman, M. J.; Cass, G. R.; Simoneit, B. R. T. Measurement of Emissions from Air Pollution Sources. 4. C1–C27 Organic Compounds from Cooking with Seed Oils. *Environ. Sci. Technol.* **2002**, 36 (4), 567–575.
- (18) Louvaris, E. E.; Karnezi, E.; Kostenidou, E.; Kaltsonoudis, C.; Pandis, S. N. Estimation of the volatility distribution of organic aerosol combining thermodenuder and isothermal dilution measurements. *Atmos. Meas. Technol. Discuss.* **2017**, 2017, 1–22.
- (19) Hayes, P. L.; Carlton, A. G.; Baker, K. R.; Ahmadov, R.; Washenfelder, R. A.; Alvarez, S.; Rappenglück, B.; Gilman, J. B.; Kuster, W. C.; de Gouw, J. A.; Zotter, P.; Prévôt, A. S. H.; Szidat, S.; Kleindienst, T. E.; Offenberg, J. H.; Ma, P. K.; Jimenez, J. L. Modeling the formation and aging of secondary organic aerosols in Los Angeles during CalNex 2010. *Atmos. Chem. Phys.* 2015, 15 (10), 5773–5801.
- (20) Liu, T.; Li, Z.; Chan, M.; Chan, C. K. Formation of secondary organic aerosols from gas-phase emissions of heated cooking oils. *Atmos. Chem. Phys.* **2017**, *17* (12), 7333–7344.
- (21) Kaltsonoudis, C.; Kostenidou, E.; Louvaris, E.; Psichoudaki, M.; Tsiligiannis, E.; Florou, K.; Liangou, A.; Pandis, S. N. Characterization of fresh and aged organic aerosol emissions from meat charbroiling. *Atmos. Chem. Phys.* **2017**, *17* (11), 7143–7155.
- (22) Abdullahi, K. L.; Delgado-Saborit, J. M.; Harrison, R. M. Emissions and indoor concentrations of particulate matter and its specific chemical components from cooking: A review. *Atmos. Environ.* **2013**, *71*, 260–294.
- (23) Torkmahalleh, M. A.; Goldasteh, I.; Zhao, Y.; Udochu, N. M.; Rossner, A.; Hopke, P. K.; Ferro, A. R. PM2.5 and ultrafine particles emitted during heating of commercial cooking oils. *Indoor Air* **2012**, 22 (6), 483–491.
- (24) Gao, J.; Cao, C. S.; Wang, L.; Song, T. H.; Zhou, X.; Yang, J.; Zhang, X. Determination of Size-Dependent Source Emission Rate of Cooking-Generated Aerosol Particles at the Oil-Heating Stage in an Experimental Kitchen. *Aerosol Air Qual. Res.* **2013**, *13* (2), 488–496.
- (25) Wang, X.; Liu, T.; Bernard, F.; Ding, X.; Wen, S.; Zhang, Y.; Zhang, Z.; He, Q.; Lü, S.; Chen, J.; Saunders, S.; Yu, J. Design and characterization of a smog chamber for studying gas-phase chemical mechanisms and aerosol formation. *Atmos. Meas. Tech.* **2014**, *7* (1), 301–313.
- (26) Liu, T.; Wang, X.; Hu, Q.; Deng, W.; Zhang, Y.; Ding, X.; Fu, X.; Bernard, F.; Zhang, Z.; Lü, S.; He, Q.; Bi, X.; Chen, J.; Sun, Y.; Yu, J.; Peng, P.; Sheng, G.; Fu, J. Formation of secondary aerosols from gasoline vehicle exhaust when mixing with SO2. *Atmos. Chem. Phys.* **2016**, *16* (2), 675–689.
- (27) Deng, W.; Hu, Q.; Liu, T.; Wang, X.; Zhang, Y.; Song, W.; Sun, Y.; Bi, X.; Yu, J.; Yang, W.; Huang, X.; Zhang, Z.; Huang, Z.; He, Q.; Mellouki, A.; George, C. Primary particulate emissions and secondary organic aerosol (SOA) formation from idling diesel vehicle exhaust in China. Sci. Total Environ. 2017, 593–594, 462–469.
- (28) World vegetable oils supply and distribution, 2012/13-2016/17. Technical Report; U.S. Department of Agriculture: Washington, DC, 2017
- (29) Zhang, X.; Cappa, C. D.; Jathar, S. H.; McVay, R. C.; Ensberg, J. J.; Kleeman, M. J.; Seinfeld, J. H. Influence of vapor wall loss in