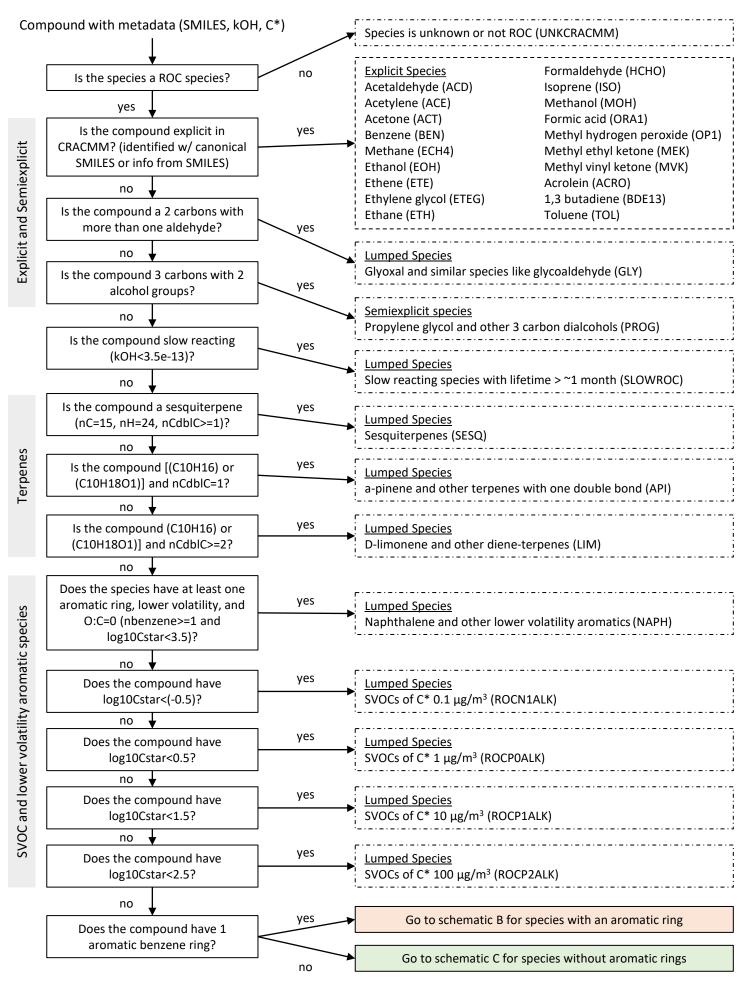
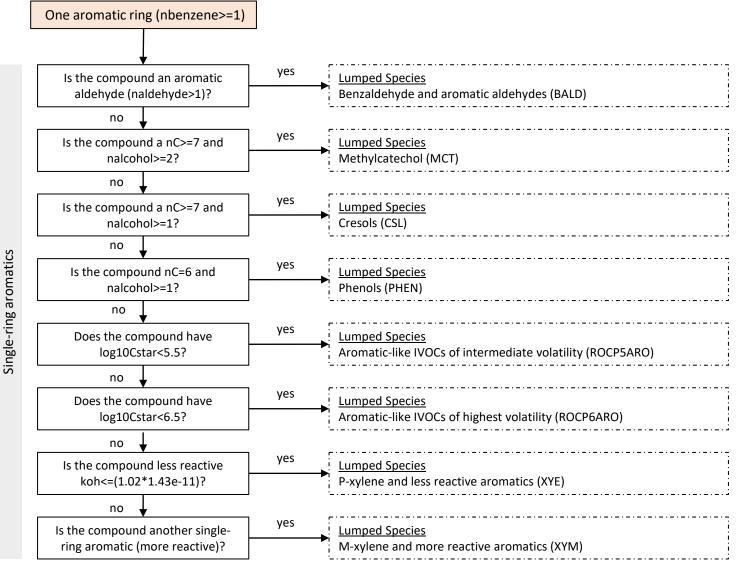
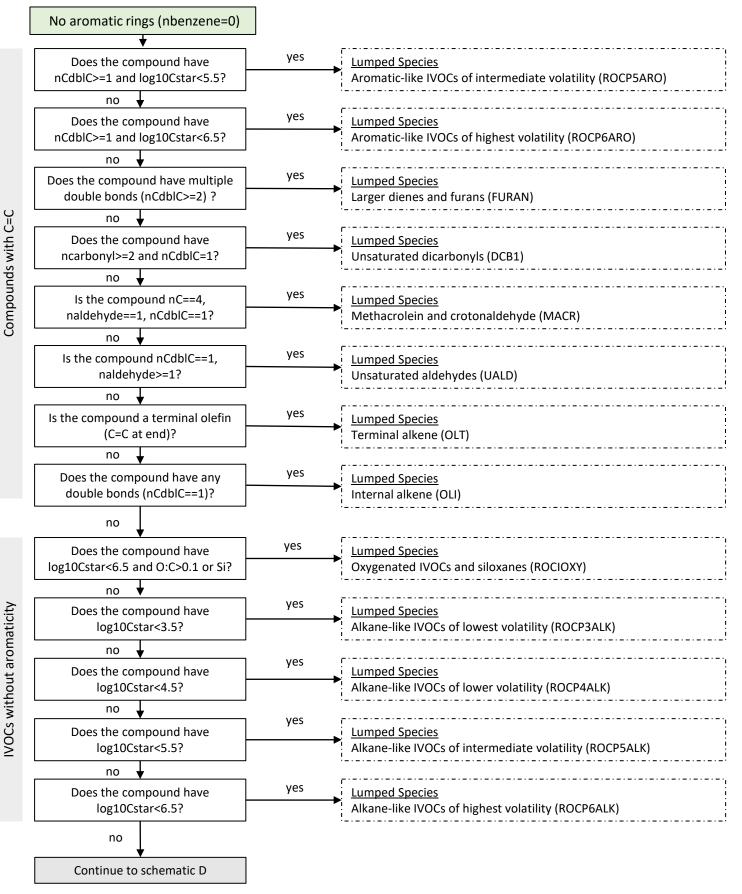
## CRACMMv1.0 Emissions Mapping, Updated 6/3/2022



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CRACMMv1.0 Emissions Mapping, Updated 6/3/2022 yes Does the compound have **Lumped Species** naldehyde>=1 and nketone>=1? methylglyoxal and similar like C4H6O2, kOH=1.5e-11 (MGLY) no yes Is the compound an aldehyde **Lumped Species** higher aldehydes (C>3), kOH=1.98e-11 (ALD) (naldehyde>=1)? yes Is the compound a peroxide **Lumped Species** (nperoxide>=1)? higher organic peroxides, kOH=6.4e-12 (OP2) Oxygenated Species yes Is the compound a hydroxy ketone (nalcohol>=1 and nketone>=1)? hydroxy ketone, kOH=3.0e-12 (HKET) no yes Is the compound a ketone **Lumped Species** (nketone>=1)? all other ketones, kOH=2.9e-12 (KET) no yes Is the compound a nitrate **Lumped Species** (nnitrate>=1)? organic nitrates, kOH=2.2e-12 (ONIT) no Is the compound an alcohol yes **Lumped Species** (nalcohol>=1)? C3 and higher alcohols, kOH=1.3e-12 (ROH) no yes Is the compound an acid **Lumped Species** (nacid>=1)? acetic acid and higher acids (C>=2), kOH=6.5e-13 (ORA2) no yes Is species slow reacting **Lumped Species** (koh < 3.4E-12)? Slow reacting species (HC3) no 'Alkanes" Is the species intermediate yes **Lumped Species** reacting (koh >= 3.4E-12 and Moderately reacting species (HC5) koh <= 6.8E-12)? no yes Is the compound fast reacting **Lumped Species** (koh > 6.8E-12)? Fast reacting species (HC8) Unknown (UNKCRACMM)

Unknowns may be of 3 types:

- UNKKOH: unknown kOH (correct by specifying better surrogate).
- UNKSMILES: unknown SMILES (correct by specifying better surrogate).
- UNKCRACMM: unknown in mapping. All ROC species eventually get classified by kOH, but species that do not have any carbon atoms or are elemental
  carbon do not get mapped.

RACM2 SI: <a href="https://ars.els-cdn.com/content/image/1-s2.0-S1352231012011065-mmc1.pdf">https://ars.els-cdn.com/content/image/1-s2.0-S1352231012011065-mmc1.pdf</a> CMAQ Implementation of RACM2:

https://github.com/USEPA/CMAQ/blob/master/CCTM/src/MECHS/mechanism information/racm2 ae6 ag/mech racm2 ae6 ag.md

## Notes:

<sup>\*</sup>HAP or potentially hazardous.

<sup>\*</sup>Lumped species largely consisting of one or more HAPs.

<sup>&</sup>lt;sup>1</sup>New in CRACMM compared to base RACM2

<sup>&</sup>lt;sup>2</sup>Modified species definition compared to base RACM2