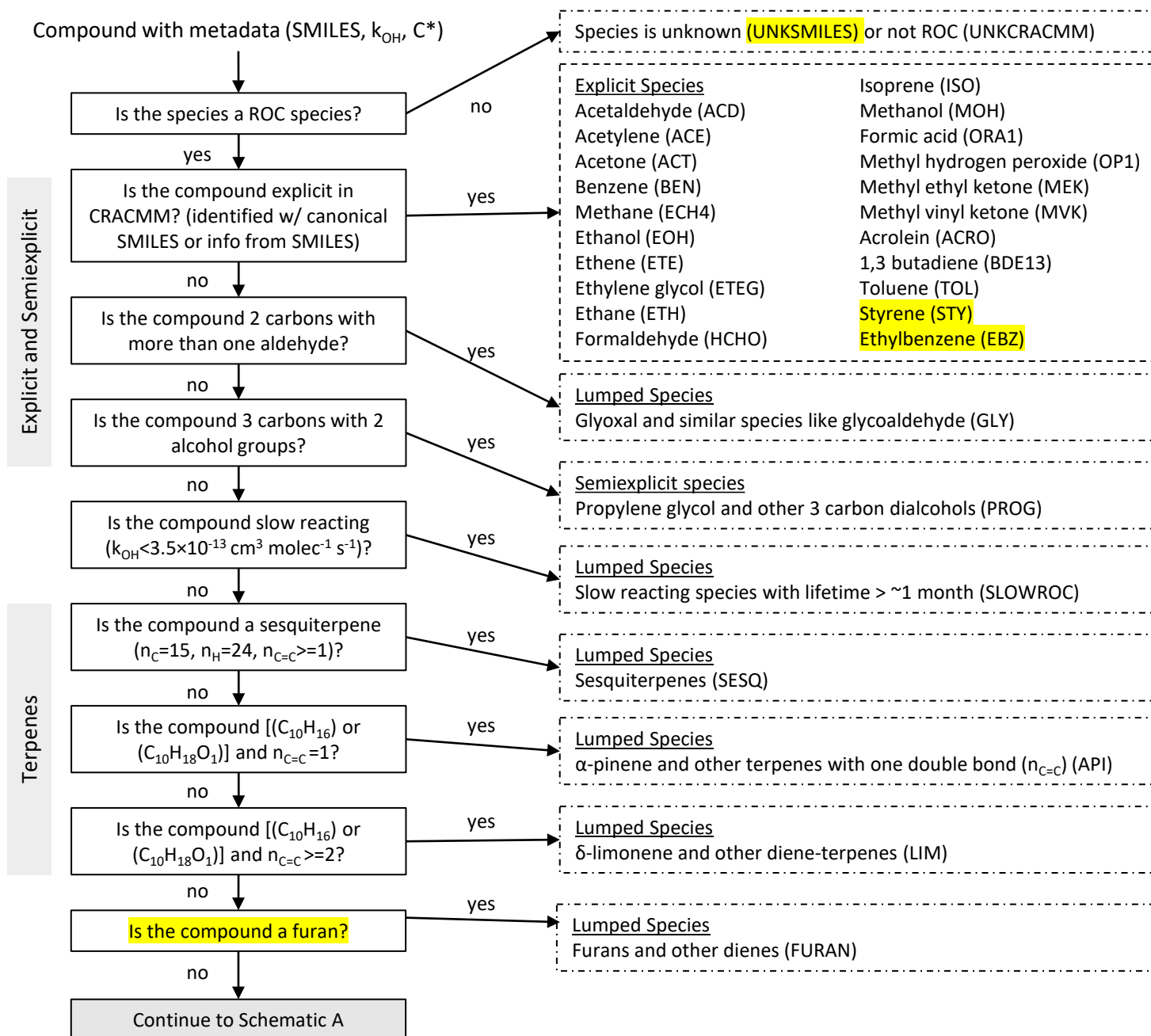


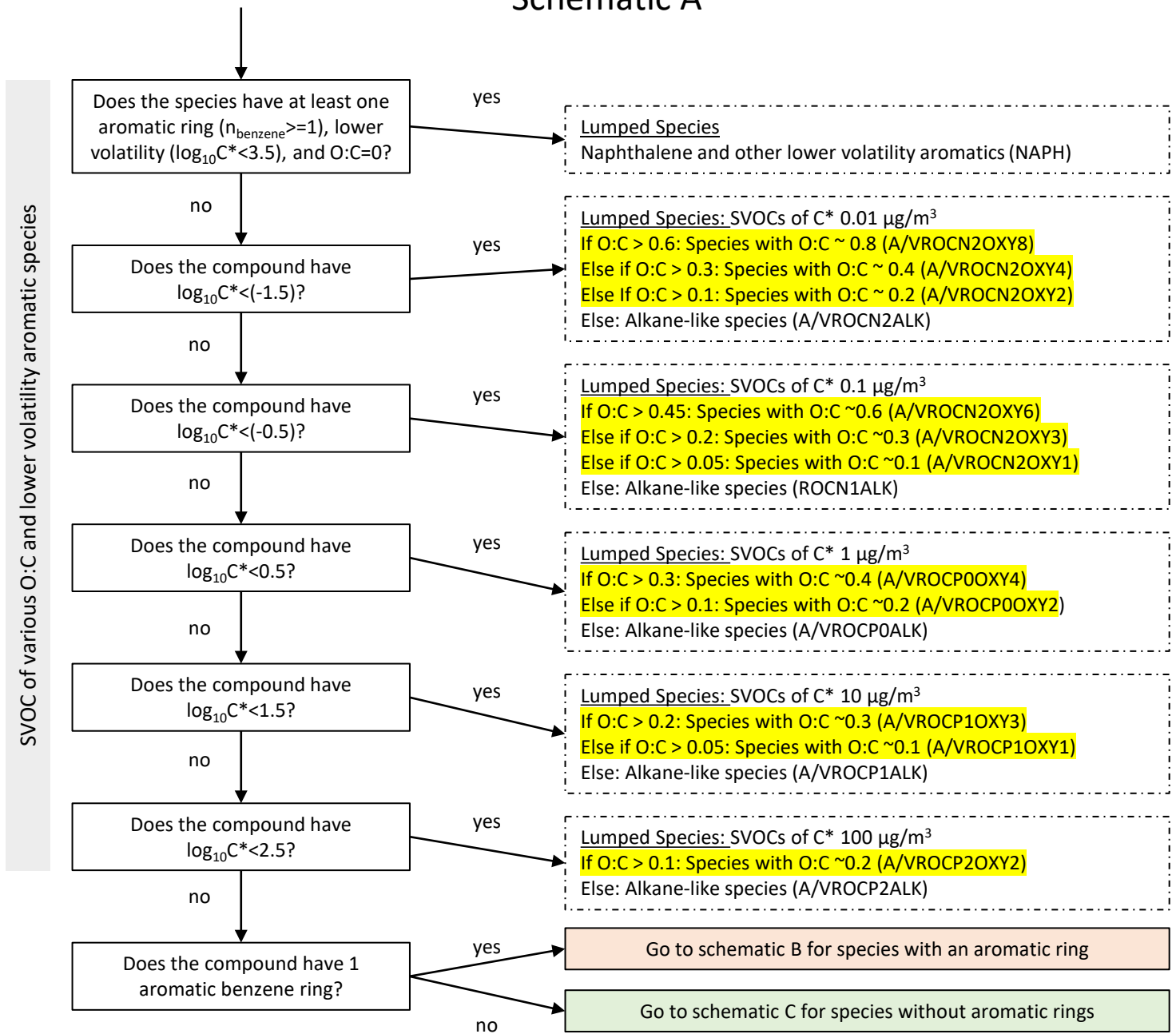
CRACMMv2.0 Emissions Mapping, Updated 8/16/2024



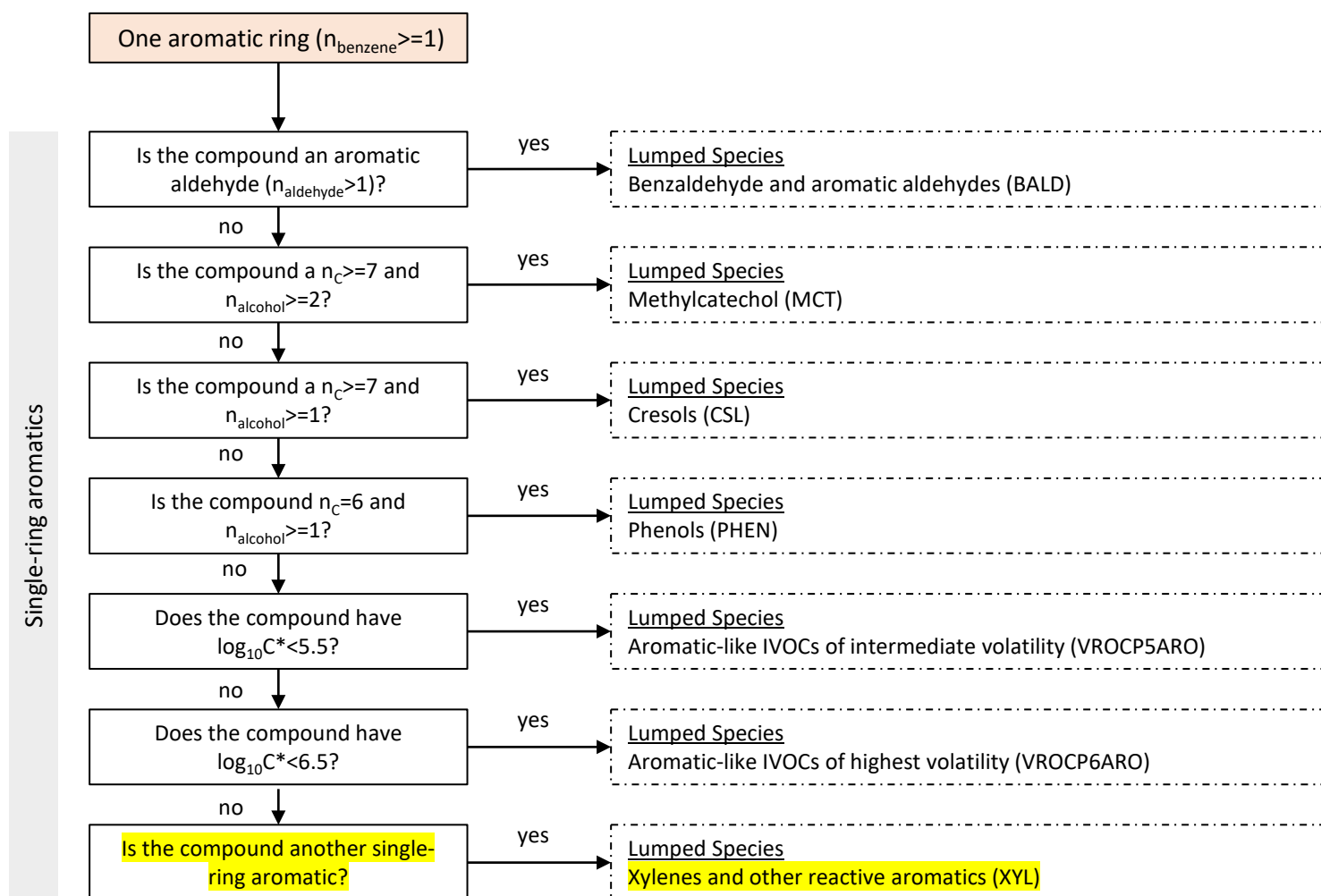
Major updates to the cracmm mapper for CRACMM2 highlighted in yellow

See Skipper et al. 2024 (<https://doi.org/10.5194/egusphere-2024-1680>) for more information on CRACMM2.

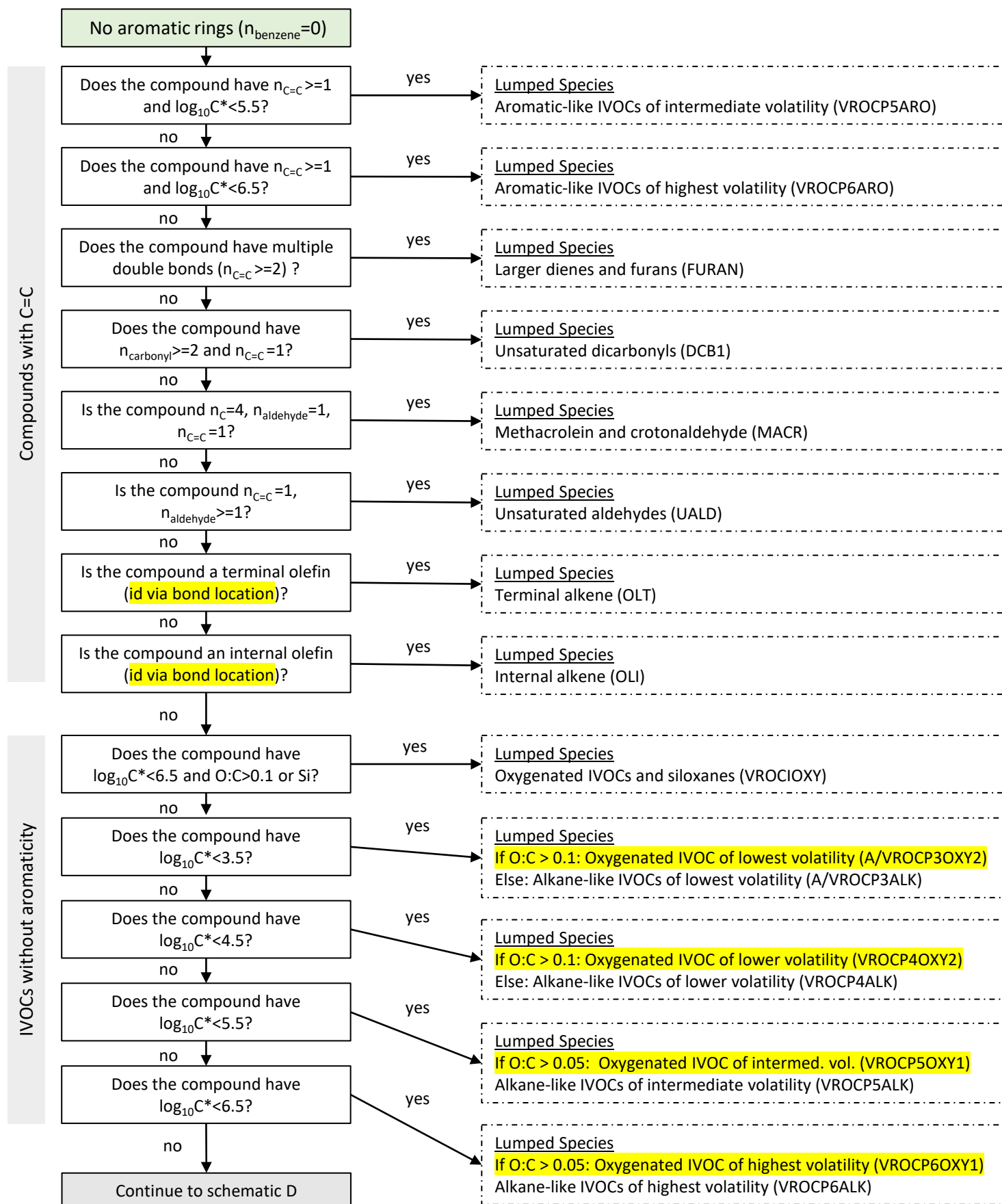
Schematic A



Schematic B

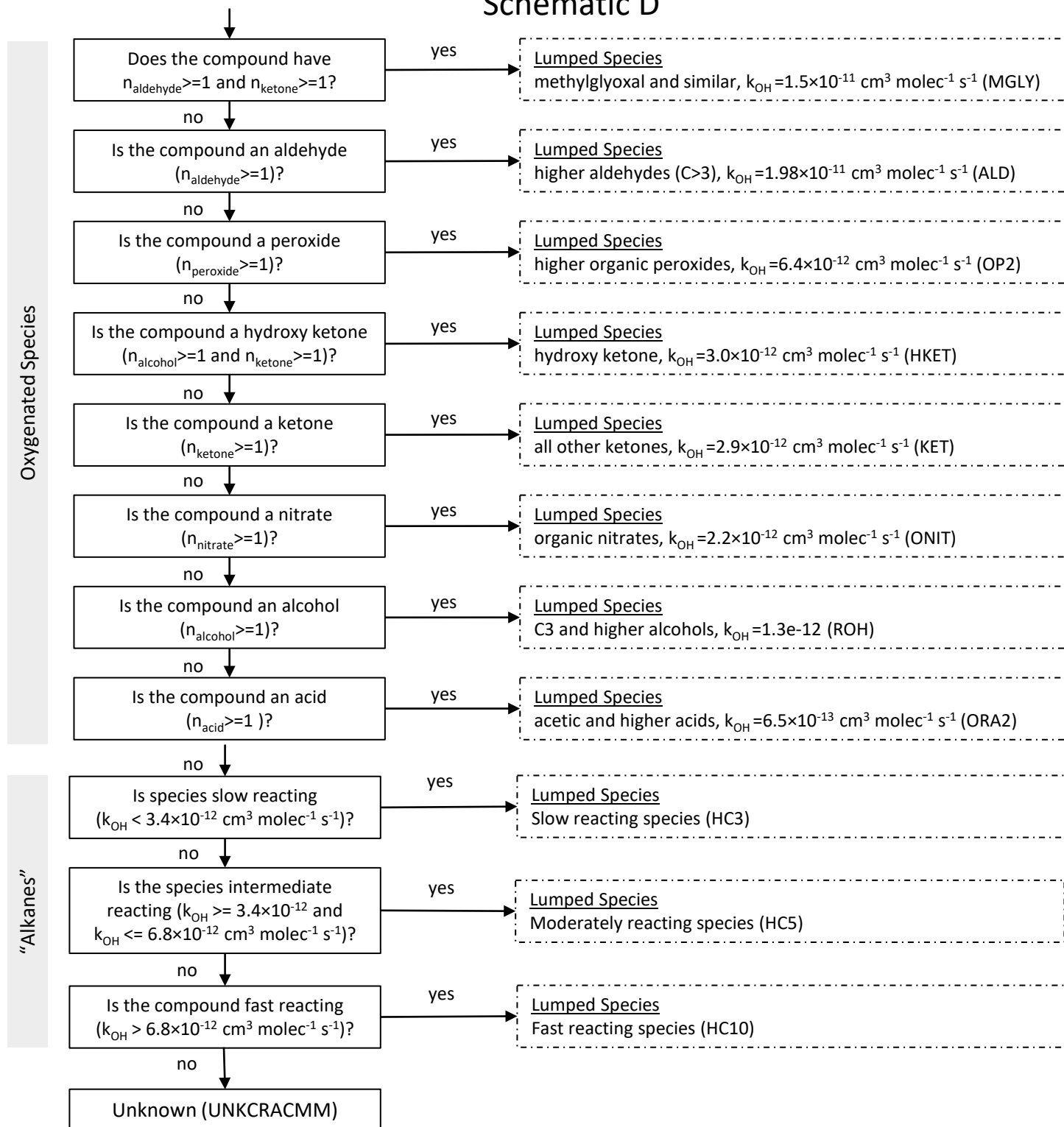


Schematic C



CRACMMv2.0 Emissions Mapping, Updated 8/16/2024

Schematic D



The CRACMM2 emission mapper includes some other updates for robustness that could result in small changes to mapped compounds. Some species can exist in a gas (V) or aerosol (A) phase. The python mapper includes an optional argument to label a species as gas or particle if two phases are possible. The user must specify the phase as input to the mapper (it is not diagnosed). The phase can be calculated based on C* and organic aerosol concentration outside the mapper.

C* are always in $\mu\text{g m}^{-3}$ in this diagram.

Unknowns may be of 3 types:

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

RACM2 SI: <https://ars.els-cdn.com/content/image/1-s2.0-S1352231012011065-mmcl.pdf>

CMAQ Implementation of RACM2:

https://github.com/USEPA/CMAQ/blob/master/CCTM/src/MECHS/mechanism_information/racm2_ae6_aq/mech_racm2_ae6_aq.md