

DHEC BAQ Emissions Inventory Section's Preferred Methodology for Emission Factors for Liquid Organic Peroxide Catalysts used in the Non-Open Molding of Composites

MEK^a - all MEK in the catalyst is assumed to be emitted.

VOC - based on information provided and utilized previously, the VOC emitted by a Liquid Organic Peroxide Catalyst is assumed to be equal to the MEK content plus 0.5%. (For Example: if the MEK content is 2%, 2.5% VOC will be emitted.)

Dimethyl Phthalate (DMP)^a - as indicated in Dr Haberlein's paper DMP is emitted in a similar manner as Styrene but has a much lower vapor pressure. Based on information contained in this paper, the Emission Inventory Section assumes that DMP is emitted proportional to the ratio of the vapor pressures of DMP to styrene which is 0.01 mmHg divided by 4.5 mmHg or 0.0022222 taking into account the method of application of the material the catalyst is combined with. In other words, to calculate a DMP factor first find the corresponding Styrene factor at the DPM weight % for a given method of application and multiply this factor by 0.0022222 to get the DMP factor.

Example: The DMP % for a given catalyst is 43% and the process is Marble Casting. Using AP-42 Table 4.4-2 for this example, one finds that the weight percent for the starting monomer emitted would be 2% (average of 1-3%). In this case, we would substitute weight % of starting monomer with the weight % of DMP. Multiplying this 2% factor by 0.0022222 the corresponding DMP factor would be 0.0044444% of the weight % of starting DMP emitted. (If a facility used 10 tons of catalyst the emissions would be $10 \text{ tons} * 0.43 * 0.00004444 = 0.0001911$ tons of DMP.)

^aMarch 24, 1999, [Emission Factors for Liquid Organic Peroxide Catalysts used in the Open Molding of Composites](#) by Robert A. Haberlein, Ph.D., QEP