

Ohio EPA

Division of Air Pollution Control

Engineering Guide #7

Question:

Is the weight of uncombined water in the raw materials entering a process to be included in the process weight rate for purposes of determining the allowable particulate emission rate from Table I in OAC rule 3745-17-11? This question was submitted specifically in regard to a mineral wool production facility where the weight of water in the binder entering a forming process constitutes approximately twenty-five percent of the weight of all incoming raw materials to such process. (This question was submitted by Bob Goulish of the Northeast District Office on February 14, 1980.)

Answer:

It has been and is the policy of the DAPC to include in the “process weight rate” the weight of water or any other material that is introduced into a process and may cause or result in any emission of particulate matter. Any material, introduced into a process, that directly or indirectly, by physical and/or chemical means, causes or results in any emission of particulate matter shall be included in the process weight rate. Since the water in this process acts in such fashion, its weight should be included in the process weight rate.

This question probably arose because of the somewhat confusing language used in OAC Chapter 3745-17. Process weight is specifically defined in two sections of that Chapter.

The first reference is in OAC rule 3745-17-01(B)(17) where “process weight” is defined as follows:

“‘Process weight’ means the total weight of all materials introduced into the source operation, including solid fuels, but excluding gaseous fuels and liquid fuels when they are used solely as fuels, and excluding air introduced for the purpose of combustion.”

The second reference is in OAC rule 3745-17-11(A)(4) where the phrase “process weight per hour” is defined as follows:

“For purposes of Table I, process weight per hour is the total weight of all materials introduced into any single, specific process (at its maximum capacity) that may cause any emission of particulate matter. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustion air will not.”

Since the rules define the term “process weight” in both the definition section and the section containing Table I, it can be presumed that the first reference is a general definition of the term that is applicable throughout the rules, unless the term is further defined in any specific rule.

Such is the case in OAC rule 3745-17-11 where the term is further defined with respect to Table I. Therefore, the latter definition of “process weight” is the appropriate one to use for purposes of obtaining the allowable particulate emission rate from Table I.

Other reasons for possible confusion result from the definition of “process weight” in OAC rule 3745-17-11(A)(4) which contains the phrase “that may cause any emission of particulate matter.” (A similar phrase is found in a portion of OAC rule 3745-17-11(A)(2), which states: “‘Table I’ in the appendix to this rule relates process weight of materials introduced into any specific process (at its maximum capacity) that may result in particulate emissions to maximum allowable mass rate of emission.”) There are two specific areas of concern with respect to that phrase. One is whether the word “cause” is associated with the word “process” or “materials,” both of which precede that phrase. The DAPC’s intent is that the word “cause” relates to the word “materials.” The other area of concern is the word “cause,” and its meaning in the above-mentioned phrase. The DAPC’s interpretation is that a material causes the emission of particulate matter if it directly or indirectly, by physical and/or chemical means, results in any such emission. For example, in the process described above, the water introduced into the process physically contributes to the emission of particulate matter by acting as a carrier (water vapor transports the particulate matter) and by increasing the turbulence in the exhaust gas stream through vaporization which increases the likelihood of particulate matter being emitted. Also, the water contributes to the emission of particulate matter through chemical means, since the various minerals dissolved therein have been shown to contribute to the particulate emissions in similar forming operations.

Therefore, the weight of water or any other material that is introduced into a process and may cause or result in particulate emissions should be included in the process weight rate for purposes of obtaining the allowable particulate emission rate from Table I.

TK/JO

(March 21, 1980; reviewed and revised March 20, 1986 and January 3, 2008)