

Step Two: Identify the pollutants that are being emitted. Pollutants are typically identified using three fairly broad categories and pollutants from all three categories are typically referred to *in toto* as “regulated pollutants.” Regulated pollutants include a number of specifically defined pollutants, as well as any substance for which an air emissions limit or standard is set by an existing permit or regulation. The first broad category of pollutants includes substances designated by the US Environmental Protection Agency (EPA) as Criteria Air Pollutants (CAPs). CAPs include those pollutants for which a national ambient air quality standard is established: NO_x, SO₂, CO, Ozone (as VOCs), PM₁₀ and Lead. The second broad category of pollutants includes substances identified by EPA as Hazardous Air Pollutants (HAPs). HAPs include those pollutants regulated under Section 112 of the Clean Air Act. It should be noted that although HAPs are typically referred to as “the 188 hazardous air pollutants,” the actual list is much longer, since many of the pollutants are identified as compounds, consisting of many individual pollutants in the family of compounds. Also note that for HAPs that are listed as a compound group, e.g., glycol ethers, the aggregate of all compounds are considered as if they were a single pollutant, i.e., the 10 TPY major source threshold applies to the aggregate of that compound group. The third broad category of pollutants includes substances identified by EPA as greenhouse gases (GHGs), including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). The mass of emissions of each greenhouse gas is multiplied by the global warming potential of each gas and these values are summed to generate a carbon dioxide equivalent (CO_{2e}) emissions rate which is used to determine the regulatory status of a facility. While this guidance document provides information of how to determine PTE for any pollutant, the specifics of the GHG program are beyond the scope of this guidance document.

Step Three: How do I calculate my PTE? There are several methods that can be used to calculate PTE. These include the emission factor method, material balances, stack tests, and emissions models. The emission factor method is probably most often used to calculate PTE.

The Emission Factor Method:

$$\text{PTE} = \text{EF} \cdot \text{PR} \cdot (1 - \text{CE}/100) \cdot \text{T} \cdot \text{SF}$$

Where PTE = potential to emit
 EF = emission factor
 PR = physical or operational design rate
 CE = control efficiency (if established by permit)
 T = operational time (8,760 hours unless a lesser time is established by permit)
 SF = safety factor (optional – see Step 4)

Emission factors are average amounts of a given pollutant that are released from a particular type of process. They are usually expressed as mass of pollutant per mass of material used or produced, or as mass of pollutant per unit of energy consumed. They are the result of testing that has been done for several similar processes or pieces of equipment. The factors are found in government publications such as AP-42 (Compilation of Air Pollutant Emission Factors), AIRS (Aerometric Information Retrieval System), FIRE (Factor Information Retrieval) database, or manufacturer specifications and/or guarantees. However, note that you assume some risk in