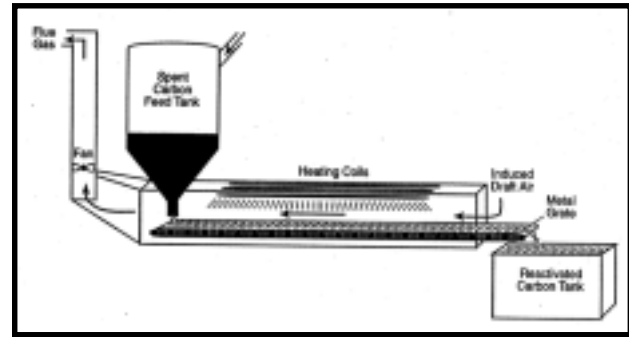


when they are used to treat wastewater for discharge under National Pollutant Discharge Elimination System (NPDES) or publicly owned treatment works (POTW) standards.

#### 2.1.4 Thermal Desorption Units

As outlined in a [June 12, 1998 Policy Memo](#), the EPA regulations do not define “thermal desorber”, but the term generally applies to a unit which treats wastes thermally to extract contaminants (i.e., volatile organics) from a matrix. A thermal desorber utilizing controlled flame combustion (e.g., equipped with a directly fired desorption chamber and/or a fired afterburner to destroy organics) would meet the regulatory definition of an incinerator. Alternatively, a thermal desorber that did not use controlled flame combustion (e.g., equipped with an indirectly heated desorption chamber and the desorbed organics were not “controlled”/destroyed with an afterburner) would be classified as a



*Schematic of Infrared furnace.*

“miscellaneous unit”. Thermal desorption may oxidize organics but in some cases merely volatilizes organic compounds from the contaminated media and concentrates them in the desorber exhaust gas stream. Thermal desorption reduces the volume of the contaminated media, but the desorber exhaust gas stream typically still requires some form of treatment.

A typical thermal desorption unit includes feed processing equipment, such as hoppers, sieves, or shredders. The feed material then is transferred into the thermal treatment unit by such equipment as conveyor belts. The feed storage, preparation, and transfer system may be unenclosed, posing risks of releases during those steps. Emission controls for the ancillary equipment may be necessary to address significant risks.

The thermal treatment unit itself may consist of a rotary kiln, a fluidized-bed system, or a multiple-hearth system, as described above for regeneration units. Typically, the waste feed travels countercurrent to an air stream inside the desorber, where temperatures typically are between 400 and 1,000°F. The contaminated air stream is directed through air pollution control devices, such as afterburners, venturi scrubbers, electrostatic precipitators, or baghouses, before it is released into the atmosphere.

*Additional Policy Memos regarding the applicability of the Subpart X regulations to Thermal Desorbers were issued on July 30, 1997, February 23, 1994, October 29, 1993 and May 18, 1988.*