VTX Process – Applications, Limitations and Process Requirements

The VTX Process can appropriately be described as liquid incineration for organic contaminants within soil, sludge, and water. The process works well on a wide variety of organic chemicals within the following scope of usage:

I. Contaminant Levels – The VTX Process is typically cost effective if total organic content is less that 2%. Additionally, VTX Process is best used to mineralise organic contaminants that are soluble in the water phase of a target waste material. The VTX Process is not ideally suited to mineralise pure substances.

II. pH – The process works at pH levels of 8.0 and below. If a waste pH is higher than this level, the pH should be adjusted to approximately 6.5 to 7.0 for best results.

III. Interference – Two inorganic anions will interfere with the process and, if present in high concentration (i.e. > 1,000 ppm), will result in process inefficiency. These ions are fluoride and phosphate. Steps can be taken to over-ride this effect however.

IV. Factors Affecting Reaction Rate – Ions like chloride, sulphate and carbonate can slow down the process but must be present in high concentration to do so.

V. Efficacy – Certain recalcitrant halogenated organic chemicals, which are highly saturated at carbon binding sites, will not be easily oxidised by the VTX Process. Carbon tetrachloride and selected highly chlorinated PCBs are examples. However, where the structure of a compound is not entirely saturated, the VTX Process will most likely be effective. Tetrachloroethylene, trichloroethylene and all of their various breakdown products are examples of highly chlorinated compounds that are vulnerable to the VTX Process. For unknown reasons, the VTX Process is not effective in treating acetone and similar substances.

VI. Treatment Times – Time of contact for water-borne treatment is typically 3 hours or less. However, with soil and sludges, time for treatment can extent to 24 hours.