



DISPOSAL METHODS

Methods for the disposal of dangerous materials waste.

At ACE, we strive to manage and ensure chemicals and waste management policies and legislation are implemented and enforced in compliance with chemicals and waste management authorizations, directives and agreements.

Safe and lawful hazardous waste disposal methods are ensured through ACE's ISO 14001 accreditation – managing systems in line with environmental policies and regulations.

The disposal methods outlined below are intended only as guides. We do not assume responsibility for their use. Careful consideration must be given to the chemical and physical properties of the substance. In addition, local laws and regulations may preclude the use of these methods that are primarily designed for small quantities. Observe all national and local laws.

The disposal of some chemicals may require deactivation or modification of the material by chemical means. Chemical waste-disposal reactions must be handled with the same care and consideration used with synthetic procedures. Appropriate consideration must be given to reaction conditions, i.e., stoichiometry, order and rate of addition, heat of reaction, evolution of gaseous products, pH, efficiency of stirring, rate of reaction, atmosphere of sensitivity, etc.

Chemical waste-disposal reaction should be carried out in a chemical fume hood and in appropriate laboratory glassware. Because these reactions are often vigorous, protective safety equipment such as safety goggles, respirator, gloves, face and/or safety shield and other protective equipment must be used.

Initial reaction in a disposal sequence should be carried out on a small scale (5 - 10g). The reactant concentrations should not exceed 10% of the reaction volume and the final reaction volume should not exceed 50% of the working capacity of the reaction vessel, regardless of the reaction scale. Larger quantities of the material should be handled in several small-size reactions. To ensure completion of reaction, the waste-disposal procedure should be run for at least an additional 4 to 8 hours after all material have been mixed.

Only technically qualified persons who are familiar with the potential hazards of the chemical reactions should carry out the reactions.

1. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care on igniting, as this material is highly flammable.

2. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

3. The combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

4. For small quantities: Cautiously add to a large stirred excess of water. Adjust the pH to neutral, separate any insoluble solids or liquids and package them for hazardous-waste disposal. Flush the aqueous solution down the drain with plenty of water. The hydrolysis and neutralization reaction may generate heat and fumes, which can be controlled by the rate of addition.

5. To a solution of the product in water, add an excess of dilute sulphuric acid. Let stand overnight. Remove any insoluble and bury in a landfill site approved for hazardous-waste disposal.

6. Cautiously dissolve the material in water. Neutralize immediately with sodium carbonate if material does not dissolve completely. Add calcium chloride in excess of the amount needed to precipitate the fluoride and/or carbonate. Separate the insoluble and bury in a landfill site approved for hazardous-waste disposal.

7. Under an inert atmosphere, cautiously add the material to dry butanol in an appropriate solvent. The chemical reaction may be vigorous and/or exothermic. Provisions must be made for the venting of large volumes of highly flammable hydrogen and/or hydrocarbon gases. Neutralize the solution with aqueous acid. Filter off any solid residues for disposal as hazardous waste. Burn the liquid portion in an incinerator equipped with an afterburner and scrubber.

8. Neutralize the solution and add the filtering agent (10g per 100ml). Evaporate liquid and bag residual solid for burial in a landfill site approved for hazardous-waste disposal.

9. Dissolve the solid in (or dilute the solution with) a large volume of water. Carefully add a dilute solution of acetic acid or acetone to the mixture in a well-ventilated area. Provisions should be made to vent safely the hydrogen gas given off during the decomposition. Check acidity of the solution and adjust to pH 1 if necessary. Let stand overnight. Neutralize the solution (pH 7). Evaporate the solution and bury the residue in a landfill site, which has been approved for hazardous-waste disposal.

