Risk-based Criteria for Use in Targeting and Prioritizing Specific NIH Laboratory Toxic Chemical Waste Streams for Reduction Efforts

Criteria are listed in reference to NIH Toxic Chemicals Master List. A quantitative metric was established for scoring each criterion. For comparing and ranking different waste streams a total score will have to be compiled for each chemical. The maximum points shown here for each criterion are for purposes of illustration and subject to adjustment. A toxic chemical with a high or maximum score of 100 points does indicate urgent priority to replace or reduce it which is based on availability of validated alternatives.

1. ***Quantity/Volume of waste generation and potential to cause adverse environmental health impacts during waste management.***

   15 Points

   Points assign to amount of waste generated in CY 07
   1,000 Kg – 10,000 Kg = **15 Points**, 100 Kg – 1,000 Kg = **10 Points**,
   10 Kg – 100 Kg = **5 Points**, and 0 Kg – 10 Kg = **1 Point**

2. ***Direct risk to human health and safety during on-site waste management activities: generation, handling, storage, transportation, recycling, treatment and disposal.***

   55 Points

   Risk determinants:

   - NFPA 704M System Rating (12 pts max) based on:
     Health, Flammability, and Reactivity of NIH target chemicals.

   - NIH Special Concern (20 pts max) based on:
     - Disposal cost associated with waste
     - WSSC discharge limitation (Chesapeake Bay toxics of concern)
     - Persistent Bio-accumulative and Toxic (PBT)
     - Restricted use or ban
     - Limited disposal/treatment options
     - Decommission cost
     - Spill clean-up and remediation

     (A conversion formula/factor was derived to compensate the difference of the above two determinants to total 55 points assigned to this criterion)

3. Wastes subject to specific reduction mandates in statutes, regulations, executive orders and agency plans. 15 Points

- All regulated hazardous wastes (RCRA minimization requirement).
- Ozone Depleting Substances (E.O. 13148, Section 505)
- Chemicals subject to agency (DHHS) goals for reductions in releases and/or off-site transfers (E.O.13148, Section 502).
- Chemical wastes assigned high NIH reduction priority (NIH Pollution Prevention Plan)
- 31 priority chemicals found in our nation's products and wastes subjected to elimination or reduction by the National Partnership for Environmental Priorities of EPA's National Waste Minimization Program..

4. *Availability and feasibility of reduction methods. 15 Points*

Reduction methods must be available and achievable without causing excessive adverse impacts on scientific productivity and other mission activities. Evaluations of potential chemical reduction methods should consider two important issues:

- Are less hazardous alternative chemicals available? (9 Points)

  (Are the alternative procedures or chemicals approved for use in biomedical applications?)

- Are they validated for use in specific research protocols? (6 Points)

  (Is the required instrumentation/equipment available?)
  (Is special training required?)