



## OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Waste Management & Cleanup Division

### Policy on Toxicity Equivalency Factors

Toxicity equivalency factors (TEFs) compare the relative toxicity of individual chemicals, or congeners, within a family of chemicals displaying similar chemical and physiological characteristics to a designated member (typically the most toxic) of this family of chemicals.

The following describes Department policy for use of TEFs in screening potential contaminants of concern (e.g., initial determination as to the types of contaminants and sites to be evaluated) and in completion of baseline risk assessments. This policy is applicable to sites cleaned up under ORS 465.200 *et. seq.*

#### **Dioxins/Furans:**

TEFs may be used in human health risk assessments. TEFs also may be used in ecological risk assessments for mammalian and avian receptors.

#### **Polycyclic Aromatic Hydrocarbons (PAHs):**

TEFs may be used in human health risk assessments. TEFs also may be used in ecological risk assessments for mammalian receptors.

#### **Polychlorinated Biphenyls (PCBs):**

TEFs are not available for the PCB Aroclors. However, TEFs may be used in congener specific human health risk assessments. TEFs also may be used in congener specific ecological risk assessments for mammalian and avian receptors.

The following additional points are made with respect to TEFs:

- 1) The risk assessment must address the uncertainty associated with the use of TEFs, as described in OAR 340-122-084(2)(f). For PAHs, this uncertainty analysis should provide a quantitative estimate of the risk assuming an equal potency to benzo(a)pyrene.
- 2) Care must be taken when using TEFs, particularly with respect to screening, to assure the sampling and analysis program adequately addresses the appropriate number of samples, types of analyses and quantitation limits. This may be particularly challenging for dioxins/furans and especially PCBs since many environmental laboratories do not perform congener specific analyses for these classes of chemicals.

- 3) The use of TEFs is an evolving science. As such, the Department may allow use of TEFs for other receptors and classes of chemicals if adequate scientific data are presented to support such use. Similarly, the Department may revise this policy as new scientific data become available.

**Disclaimer:** This policy statement is intended solely as guidance for employees of the Department of Environmental Quality. It does not constitute rulemaking by the Environmental Quality Commission and may not be relied upon to create a right or benefit, substantive or procedural, enforceable at law or in equity, by any person. DEQ may take action at variance with this policy statement.

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