

**ECETOC Document**

**No 12**

**Criteria for Choosing  
Chemicals for Testing**

**December 1980**

## ECETOC

December 19, 1980

SC/GEN/11

LT/mdm/631

CRITERIA FOR CHOOSING CHEMICALS FOR TESTINGA. The problem

One of the priority topics which members wished ECETOC to deal with is the question of which chemicals should get priority for testing regarding their potential toxic or ecotoxic effects. The request was for a list of priority chemicals.

The Scientific Committee, after much discussion, decided that there were good reasons against producing such a list, but that a paper on the criteria for choosing priority chemicals would be valuable. The criteria are set out below. They refer to existing compounds only.

B. Criteria for Choosing Priority Chemicals for Testing.

There are probably around 30.000 chemicals handled by the chemical industry in Europe if one includes such products as catalysts, water-treatment aids, and similar accessory materials. Any one ECETOC member company may handle many thousands out of the total, but has limited resources for outside or inhouse testing. Hence the need for criteria for choosing which to test.

1. Primary criteria

The most feasible criteria useful for an initial screening are the chemical structure, physico-chemical properties and the existence of already publicised evidence causing suspicion.

For the consideration of chemical structure a toxicologist (or ecotoxicologist) and a chemist are required, to pick out chemicals with elements of structure related to known toxic or ecotoxic agents, especially in the case of possible carcinogens where it may also be possible to eliminate chemicals whose structure is related to substances believed to be non-carcinogens.

For example, alkylating substances, aromatic amines and nitrosamines could be initially suspected of possible carcinogenic activity.

Consideration of the physico-chemical properties gives an estimate of whether significant or substantial exposure could result from a gas, a volatile liquid, a solid which could yield respirable particles, etc.

From the application of these primary criteria there results a GROUP A of chemicals selected.

Note : The SC were unanimous in rejecting tonnage as a primary basis for priority. Many large-tonnage chemicals have been handled for years with no evidence of toxic effects, whilst some of the best-known incidents involving serious toxic damage have involved small-tonnage chemicals of high potency.

## 2. Secondary criteria

The following should be considered for the GROUP A chemicals :

- human and environmental exposure at manufacturing, user and customer sites;
- pattern of use ;
- pattern of disposal.

These factors are more fundamental than tonnage, and may not be proportionally-related to it, but nevertheless tonnage should be taken into account.

Application of the secondary criteria enables more chemicals to be eliminated, and yields a GROUP B of chemicals.

## 3. Tertiary Criteria

The toxicity and ecotoxicity information already available about the GROUP B chemicals should be reviewed - this again requires a toxicologist or ecotoxicologist to ensure a critical approach to the evidence.

It may be more important to test those chemicals for which information on carcinogenicity, mutagenicity and teratogenicity is lacking, rather than those for which acute toxic effects are unknown - depending on the other factors for the products.

Consideration of the above gives a GROUP C of chemicals as final priority group.

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