CHAPTER –7

POLLUTION CONTROL AND SAFETY

Although 2-EH has been commercially produced over a long period there have been no reports of injurious or harmful occurrences. The following values are given in the literature.

LD_{50} oral, rat & mice	> 3200 mg/kg
LD_{50} oral – muscle	3200 mg/kg
LD_{50} skin – rabbit	2380 mg/kg

No TLV values are given for 2-EH.
The inhalation toxicity is low (no death after 6 hours exposure to 235 ppm 2-EH in air to rats).

Special measures are unnecessary with 2-EH although larger skin contact & moistening of mucous membranes should be arrested (protective goggles, protective gloves, etc.). Application in the cosmetic sector is therefore inadvisable.

The Oxo process presents no significant pollution problems. All byproducts –off –gas, low boiling and high boiling liquids – can be easily used as fuel to recover their calorific value. The separation of the cobalt in the catalyst system has been improved so much in the recent years that the catalyst loss in the effluents is considerably reduced. The wastewater can be treated without any difficulties to meet requirements of local authorities.

The effluent problem is different for the aldehyde route. Large quantities of effluent water are released in the single-step process but these can be treated biologically or can be treated for re–use with the aid of suitable additional equipment. In the case of the two-

step process, small quantities of effluent contain a relatively large quantity of solids. It is advisable to incinerate part of the effluent stream with chlorinated byproducts where large plants are concerned.

The tail gas from the single – step process can be burnt in a flare whereas the tail gas from the two – step process is very diluted and can be discharged into the atmosphere without further treatment.

The manufacture of plasticizer alcohols, from a raw materials viewpoint, remains unaltered even after the oil crisis. 2-EH offers the possibility of production from widely different raw materials and should be of prime interest in developing countries.