

ATTACHMENT IV

3.3.6 Test Plan for Ecotoxicity

No new ecotoxicity testing is recommended. Acute fish toxicity studies have been performed with all three compounds. The toxic levels of AMD and NBMA are similar while the level for NMA is substantially higher. Additional studies (chronic toxicity to fish and crustacea) are available for AMD.

3.4 Mammalian Toxicity Data**3.4.1 Acute Toxicity**

A large number of acute toxicity studies have been performed on the three chemicals under consideration. The results of these studies have been consistent and thus can be easily summarized. Oral LD₅₀ values for AMD are consistently in the range of 100 - 200mg/kg for rats (Fullerton et al., 1966; Paulet and Vidal 1974; Tilson and Cabe 1979b; and McCollister et al., 1964), mice (Hashimoto et al., 1981), rabbits (McCollister et al., 1964) and guinea pigs (McCollister et al., 1964). The inhalation LC₀₁ values for rats and mice exceed 5.7 ppm since no mortality was observed at the concentration following a 6 hr. nose-only exposure (Friedman, et al., 2001). These values are increased (i.e. the toxicity is decreased) as substitutions occur on the acrylamide moiety. Thus, the oral LD₅₀ values for NMA are in the range of 400-677 mg/kg for rats (Batelle, 1981a; Japanese Journal of Hygiene 1979) and mice (Hashimoto et al., 1981; Batelle, 1981b; Cyanamid Report 53-82, 1954) while the rat oral LD₅₀ values for NBMA range from 630 - 1,144 mg/kg (Carpenter, 1971; Cytex MSDS No. 4500; RTECS 2001).

The same relationship exists among these compounds with regard to acute dermal toxicity. The LD₅₀ values for AMD are 1,880 and 400 mg/kg for rabbits (Vernon et al., 1990) and rats (Novikova 1979), respectively. The rabbit LD₅₀ values for NMA and NBMA are >16,000 (Vernon et al., 1990) and >991 mg/kg (Carpenter 1971), respectively.

The relatively low oral and dermal toxicity of all of these compounds is consistent with the low toxicity of NMA by the inhalation route. The nose-only LC₅₀ values for rats, mice and guinea pigs by this route is >39 mg/m³ (Vernon et al., 1990). As expected, the toxicity for AMD via the inhalation route is somewhat higher than that of NMA; the nose-only LD₀₁ for rats and mice is >5.7 ppm (Friedman et al., 2001).

Results of acute toxicity studies with AMD, NMA and NBMA are summarized in Table 5.

