

6. *Animal metabolism.* Dichlormid was well absorbed, extensively metabolized and eliminated mainly in the urine within 24 hours. A significant proportion of the dose, up to 11%, was exhaled as CO<sub>2</sub>. Two routes of biotransformation have been identified. One route involved the formation of an alcohol N,N-diallylglycolamide before subsequent oxidation to N,N-diallyloxamic acid, a major metabolite present in the urine and feces of both sexes. N,N-diallylglycolamide also undergoes further biotransformation to minor dechlorinated metabolites. In the second metabolic pathway, dichloroacetic acid present in the urine of both sexes is formed either directly from dichlormid or indirectly by transformation of N-allyl-2,2-dichloro-N-(2,3-dihydroxypropyl)acetamide. Entero-hepatic recirculation plays a major role in the distribution, metabolism and excretion of dichlormid. The elimination as CO<sub>2</sub>, the even elimination in urine over the first 24 hours, and wide distribution of retained radioactivity indicates some incorporation into endogenous metabolic processes.

7. *Metabolite toxicology.* No unique plant or soil metabolites have been identified that warrant a separate toxicological assessment.

8. *Endocrine disruption.* There is no overall trend in the toxicology data base that indicates that dichlormid would have endocrine disrupting activity. The mammalian and ecotoxicology data bases do not indicate significant adverse effects associated with endocrine disrupter activity.

#### C. Aggregate Exposure

1. *Dietary—i. Food.* In conducting a chronic dietary risk assessment, reference is made to the conservative assumptions made by EPA in establishing dichlormid time-limited tolerances on March 27, 2000 (65 FR 16143) (FRL-6498-7), 100% crop treated (CT), and that all commodities contain residues at the tolerance or proposed tolerance. The analysis was determined using the Novigen Dietary Exposure Evaluation Model (DEEM Version 6.2) software and the United States Department of Agriculture (USDA) nationwide Continuing Surveys of Food Intake by Individuals (CSFII) survey that was conducted from 1994 through 1996.

ii. *Drinking water.* Dichlormid is very rapidly degraded in soil (laboratory measured aerobic half-life of 8 days) and applied at a maximum rate of 0.5 lb/acre, so despite only exhibiting moderate adsorption to soil (Koc 36–49), the leaching potential for dichlormid to

reach ground water is expected to be low. The impact of the interactive processes of adsorption and degradation on leaching have been assessed using EPA mathematical models of pesticide movement in soil. Drinking water estimate concentrations (DWECE) were calculated for ground water using Screening Concentration in Ground water (SCI-GROW) modeling, and surface water estimate concentrations were calculated using Generic Estimated Environmental Concentration (GENEEC) modeling. These models predict a ground water concentration of 0.05 ppb and surface water concentrations of 27.3 parts per billion (ppb) for an instantaneous peak, and 26.9 ppb for a 56-day average. However, the interim Agency policy allows the average 56-day GENEEC values to be divided by 3 (9.0 ppb) to obtain a value for chronic risk assessments. Drinking water levels of concern (DWLOC) were calculated for both chronic and acute exposure. As stated in the March 27, 2000 final rule:

...the modeled groundwater and surface water concentrations are less than the DWLOCs for dichlormid in drinking water for acute and chronic aggregate exposures. Thus, the Agency is able to screen out dichlormid drinking water risks.

Dow AgroSciences LLC does not expect exposure to dichlormid residues in drinking water to be a concern, as a result of the increased exposure pattern.

2. *Non-dietary exposure.* The general population is not expected to be exposed to dichlormid through non-dietary routes since dichlormid is used only on agricultural crops and is not used in or around the home.

#### D. Cumulative Effects

The potential for cumulative effects of dichlormid and other substances that have a common mechanism of toxicity have been considered. There is no reliable information to suggest that dichlormid has any toxic effects that arise from toxic mechanisms common to other substances. Therefore, a consideration of common mechanism and cumulative effects with other substances is not appropriate for dichlormid.

#### E. Safety Determination

1. *U.S. population—i. Chronic risk.* Using the conservative exposure assumptions described earlier, and based on the completeness and reliability of the toxicity data base for dichlormid, the theoretical maximum residue concentration (TMRC) for the general U.S. population is calculated to be 0.0009 mg/kg/day, or 4.1% of the cPAD (0.0022 mg/kg/day). The most highly exposed subgroup are children

aged 1–6 years with a TMRC of 0.000211 mg/kg/day, or 9.6% of the cPAD. As EPA generally has no concern for exposures below 100% of the RfD because the RfD represents the level at or below which daily aggregate dietary exposure over a lifetime will not pose appreciable risks to human health, Dow AgroSciences LLC believes that there is a reasonable certainty that no harm will result from aggregate exposure to dichlormid residues.

ii. *Acute risk.* The acute toxicity of dichlormid is low, and there are no concerns for acute-dietary, occupational or non-occupational exposures to dichlormid.

2. *Infants and children.* In assessing the potential for additional sensitivity of infants and children to residues of dichlormid, data from developmental toxicity studies in the rat and rabbit have been considered. The developmental toxicity studies are designed to evaluate adverse effects on the developing organism resulting from maternal pesticide exposure during gestation. There was no evidence to suggest that dichlormid was a developmental toxicant in either the rat or rabbit. It was also observed that there was no risk below maternally toxic doses as the NOAEL for developmental effects in the rat was 40 mg/kg/day, compared to the maternal NOAEL of 10 mg/kg/day; and in the rabbit study, the NOAEL for both maternal and developmental effects was 30 mg/kg/day. EPA has previously concluded, that the additional 10x safety factor should be retained due to the qualitative evidence of increased susceptibility demonstrated following *in utero* exposure in the prenatal developmental toxicity in rabbits and an incomplete toxicity data base. It should be noted that in the rabbit developmental toxicity study, the LOAEL for both maternal and developmental toxicity was 180 mg/kg/day. The effects on resorptions at this dose were observed in dams which showed an average weight loss (–3.8g) during the treatment period compared with an average weight gain in controls of 272g. Also, a multigeneration study has now been completed, and therefore, Dow AgroSciences LLC believes that an additional safety factor should no longer be necessary.

Additional uncertainty factors are not warranted for the safety of infants and children as reliable data support the appropriate use of a 100-fold uncertainty factor margin of exposure (MOE) to account for interspecies extrapolation and intraspecies variability. However, using the conservative exposure assumptions above for the determination in the