

to exposures (margin of exposure (MOE) = NOAEL/exposure) is calculated and compared to the LOC.

The linear default risk methodology (Q*) is the primary method currently used by the Agency to quantify carcinogenic risk. The Q* approach assumes that any amount of exposure will lead to some degree of cancer risk. A Q* is calculated and used to estimate risk which represents a probability of occurrence of additional cancer cases (e.g., risk is expressed as 1 x 10⁻⁶ or one in a million). Under certain specific circumstances, MOE calculations will be used for the carcinogenic risk assessment. In this non-linear approach,

a "point of departure" is identified below which carcinogenic effects are not expected. The point of departure is typically a NOAEL based on an endpoint related to cancer effects though it may be a different value derived from the dose response curve. To estimate risk, a ratio of the point of departure to exposure (MOE_{cancer} = point of departure/exposures) is calculated.

S-metolachlor, [2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide], is a member of the chloroacetanilide class of herbicides. In this risk assessment the term s-metolachlor will refer to a

metolachlor product which is enriched in the S-isomer. The term metolachlor will refer to a racemic mixture of the R and S isomers.

Toxicological endpoints have been selected for metolachlor and s-metolachlor for use in human health risk assessments. The Agency has determined that metolachlor and s-metolachlor are of comparable toxicity, and therefore, studies with both chemicals were used interchangeably for toxicology endpoint selection.

A summary of the toxicological endpoints for s-metolachlor used for human risk assessment is shown in the following Table 1:

TABLE 1.—SUMMARY OF TOXICOLOGICAL DOSE AND ENDPOINTS FOR S-METOLACHLOR FOR USE IN HUMAN RISK ASSESSMENT

Exposure Scenario	Dose Used in Risk Assessment, UF	FQPA SF* and Level of Concern for Risk Assessment	Study and Toxicological Effects
Acute Dietary (Females 13-50 years of age)	NOAEL = 300 mg/kg/day UF = 100 Acute RfD = 3.0 mg/kg/day	FQPA SF = 1x aPAD = acute RfD/FQPA SF = 3.0 mg/kg/day	Prenatal developmental toxicity study in rats LOAEL = 1,000 mg/kg/day based on death, clinical signs of toxicity (clonic and/or tonic convulsions, excessive salivation, urine-stained abdominal fur and/or excessive salivation) and decreased body weight gain
Acute Dietary (General population including infants and children)	NOAEL = 300 mg/kg/day UF = 100 Acute RfD = 3.0 mg/kg/day	FQPA SF = 1x aPAD = acute RfD/FQPA SF = 3.0 mg/kg/day	Prenatal developmental toxicity study in rats LOAEL = 1,000 mg/kg/day based on death, clinical signs of toxicity (clonic and/or tonic convulsions, excessive salivation, urine-stained abdominal fur and/or excessive salivation) and decreased body weight gain
Chronic Dietary (All populations)	NOAEL = 9.7 mg/kg/day UF = 100 Chronic RfD = 0.1 mg/kg/day	FQPA SF = 1x cPAD = chronic RfD/FQPA SF = 0.1 mg/kg/day	Chronic study in dogs LOAEL = 33.0 mg/kg/day based on decreased body weight gain in females
Short-Term Dermal (1 to 7 days) (Residential)	Hazard was not identified for quantification of risk. No systemic toxicity was seen at the limit dose (1,000 mg/kg/day) following dermal applications and there is no concern for developmental toxicity in rats or rabbits.		
Intermediate-Term Dermal (1 week to several months) (Residential)	Hazard was not identified for quantification of risk. No systemic toxicity was seen at the limit dose (1000 mg/kg/day) following dermal applications and there is no concern for developmental toxicity in rats or rabbits.		
Long-Term Dermal (several months to lifetime) (Residential)	dermal (or oral) study NOAEL = 9.7 mg/kg/day (dermal absorption rate = 58% when appropriate)	LOC for MOE = 100 (Residential)	Chronic toxicity study in dogs LOAEL = 33.0 mg/kg/day based on decreased body weight gain in females
Short-Term Inhalation (1 to 7 days) (Residential)	Inhalation (or oral) study NOAEL = 50 mg/kg/day (inhalation absorption rate = 100%)	LOC for MOE = 100 (Residential)	Prenatal developmental toxicity study in rats LOAEL = 500 mg/kg/day based on increased incidence of clinical signs, decreased body weight/body weight gain, food consumption, and food efficiency
Intermediate-Term Inhalation (1 week to several months) (Residential)	Inhalation (or oral) study NOAEL = 8.8 mg/kg/day (inhalation absorption rate = 100%)	LOC for MOE = 100 (Residential)	Subchronic (6 month) toxicity study in dogs LOAEL based on decreased body weight gain