

in water (EECs). DWLOC values are not regulatory standards for drinking water. DWLOCs are theoretical upper limits on a pesticide's concentration in drinking water in light of total aggregate exposure to a pesticide in food and residential uses. In calculating a DWLOC, the Agency determines how much of the acceptable exposure (i.e., the PAD) is available for exposure through drinking water (e.g., allowable chronic water exposure (mg/kg/day) = cPAD - (average food + residential exposure)). This allowable exposure through drinking water is used to calculate a DWLOC.

A DWLOC will vary depending on the toxic endpoint, drinking water consumption, and body weights. Default body weights and consumption values as used by EPA's Office of Water are used to calculate DWLOCs: 2 liter (L)/70 kg (adult male), 2L/60 kg (adult female), and 1L/10 kg (child). Default body weights and drinking water

consumption values vary on an individual basis. This variation will be taken into account in more refined screening-level and quantitative drinking water exposure assessments. Different populations will have different DWLOCs. Generally, a DWLOC is calculated for each type of risk assessment used: Acute, short-term, intermediate-term, chronic, and cancer.

When EECs for surface water and ground water are less than the calculated DWLOCs, EPA concludes with reasonable certainty that exposures to the pesticide in drinking water (when considered along with other sources of exposure for which EPA has reliable data) would not result in unacceptable levels of aggregate human health risk at this time. Because EPA considers the aggregate risk resulting from multiple exposure pathways associated with a pesticide's uses, levels of comparison in drinking water may vary as those uses

change. If new uses are added in the future, EPA will reassess the potential impacts of residues of the pesticide in drinking water as a part of the aggregate risk assessment process.

1. *Acute risk.* Using the exposure assumptions discussed in this unit for acute exposure, the acute dietary exposure from food to clothianidin will occupy 7.3% of the aPAD for the U.S. population, 5.4% of the aPAD for females 13 years and older, 11% of the aPAD for all infants (less than 1 year old) and 16% of the aPAD for children 1 to 2 years old. In addition, there is potential for acute dietary exposure to clothianidin in drinking water. After calculating DWLOCs and comparing them to the EECs for surface water and ground water, EPA does not expect the aggregate exposure to exceed 100% of the aPAD, as shown in Table 3 of this unit:

TABLE 3.—AGGREGATE RISK ASSESSMENT FOR ACUTE EXPOSURE TO CLOTHIANIDIN

Population Subgroup	aPAD (mg/kg)	% aPAD (Food)	Surface Water EEC (ppb)	Ground Water EEC (ppb)	Acute DWLOC (ppb)
General U.S. population	0.025	7.3	3.97	1.46	810
All infants (< 1 year old)	0.025	11	3.97	1.46	220
Children (1–2 years old)	0.025	16	3.97	1.46	210
Females (13–49 years old)	0.025	5.4	3.97	1.46	710
Adults (50+ years old)	0.025	6.0	3.97	1.46	820

2. *Chronic risk.* Using the exposure assumptions described in this unit for chronic exposure, EPA has concluded that exposure to clothianidin from food will utilize 5.9% of the cPAD for the U.S. population, 9.8% of the cPAD for all infants (less than 1 year old) and

18% of the cPAD for children 1 to 2 years old. There are no residential uses for clothianidin that result in chronic residential exposure to clothianidin. In addition, there is potential for chronic dietary exposure to clothianidin in drinking water. After calculating

DWLOCs and comparing them to the EECs for surface water and ground water, EPA does not expect the aggregate exposure to exceed 100% of the cPAD, as shown in Table 4 of this unit:

TABLE 4.—AGGREGATE RISK ASSESSMENT FOR CHRONIC (NON-CANCER) EXPOSURE TO CLOTHIANIDIN

Population Subgroup	cPAD mg/kg/day	% cPAD (Food)	Surface Water EEC (ppb)	Ground Water EEC (ppb)	Chronic DWLOC (ppb)
General U.S. Population	0.0098	5.9	2.14	1.46	320
All Infants (< 1 year old)	0.0098	9.8	2.14	1.46	88
Children (1–2 years old)	0.0098	18	2.14	1.46	80
Females (13–49 years old)	0.0098	4.6	2.14	1.46	280
Adults (50+ years old)	0.0098	4.9	2.14	1.46	320

3. *Short-term risk.* Short-term aggregate exposure takes into account residential exposure plus chronic exposure to food and water (considered

to be a background exposure level). Clothianidin and thiamethoxam are not registered for use on any sites that would result in residential exposure.

Therefore, the aggregate risk is the sum of the risk from food and water, which do not exceed the Agency's LOC.

4. *Intermediate-term risk.* Intermediate-term aggregate exposure