

Guideline value	0.009 mg/l (9 µg/l)
Occurrence	Chlorophenoxy herbicides not frequently found in drinking-water; when detected, concentrations usually no greater than a few micrograms per litre
TDI	3 µg/kg body weight, based on a NOAEL of 3 mg/kg body weight for reduced body weight gain, increased liver and kidney weights and renal toxicity in a 2-year study in rats, with an uncertainty factor of 1000 (100 for interspecies and intraspecies variation and 10 to take into consideration the suggested association between 2,4,5-T and soft tissue sarcoma and non-Hodgkin lymphoma in epidemiological studies)
Limit of detection	0.02 µg/l by GC with ECD
Treatment performance	1 µg/l should be achievable using GAC
Guideline value derivation	
• allocation to water	10% of TDI
• weight	60 kg adult
• consumption	2 litres/day
Assessment date	1993
Principal reference	WHO (2003) <i>Chlorophenoxy herbicides (excluding 2,4-D and MCPA) in drinking-water</i>

Chlorophenoxy herbicides, as a group, have been classified in Group 2B (possibly carcinogenic to humans) by IARC. However, the available data from studies in exposed populations and experimental animals do not permit assessment of the carcinogenic potential to humans of any specific chlorophenoxy herbicide. Therefore, drinking-water guidelines for these compounds are based on a threshold approach for other toxic effects. The NOAEL for reproductive effects (reduced neonatal survival, decreased fertility, reduced relative liver weights and thymus weights in litters) of dioxin-free (< 0.03 µg/kg) 2,4,5-T in a three-generation reproduction study in rats is the same as the NOAEL for reduced body weight gain, increased liver and kidney weights and renal toxicity in a toxicity study in which rats were fed 2,4,5-T (practically free from dioxin contamination) in the diet for 2 years.

Terbuthylazine

Terbuthylazine (CAS No. 5915-41-3), or TBA, a herbicide that belongs to the chlorotriazine family, is used in both pre-emergence and post-emergence treatment of a variety of agricultural crops and in forestry. Degradation of TBA in natural water depends on the presence of sediments and biological activity.

Guideline value	0.007 mg/l (7 µg/l)
Occurrence	Concentrations in water seldom exceed 0.2 µg/l, although higher concentrations have been observed.
TDI	2.2 µg/kg body weight, based on a NOAEL of 0.22 mg/kg body weight for decreased body weight gain at the next higher dose in a 2-year toxicity/carcinogenicity study in rats, with an uncertainty factor of 100 (for interspecies and intraspecies variation)

Limit of detection	0.1 µg/l by HPLC with UV detection
Treatment performance	0.1 µg/l should be achievable using GAC
Guideline value derivation	
• allocation to water	10% of TDI
• weight	60 kg adult
• consumption	2 litres/day
Assessment date	1998
Principal reference	WHO (2003) <i>Terbutylazine in drinking-water</i>

There is no evidence that TBA is carcinogenic or mutagenic. In long-term dietary studies in rats, effects on red blood cell parameters in females, an increased incidence of non-neoplastic lesions in the liver, lung, thyroid and testis and a slight decrease in body weight gain were observed.

Tetrachloroethene

Tetrachloroethene (PCE) has been used primarily as a solvent in dry-cleaning industries, and to a lesser extent as a degreasing solvent. Since the 1980s, as a result of regulations in North America, Europe and elsewhere, its use has substantially decreased. PCE is widespread in the environment and is found in trace amounts in water, aquatic organisms, air, foodstuffs and human tissue. The most relevant routes of exposure are considered to be inhalation of contaminated air and ingestion of contaminated drinking-water, particularly from groundwater sources. Poor handling and improper disposal of PCE in landfills have been the main causes of water contamination. Higher levels of PCE are expected in groundwater than in surface water because of the lack of volatilization that occurs from groundwater. However, drinking-water is not a major source of exposure, unless in the vicinity of a contaminated site.

Guideline value	0.1 mg/l (100 µg/l)
Occurrence	Concentrations in drinking-water are generally below 10 µg/l, although much higher concentrations have been detected in well water (23 mg/l) and in contaminated groundwater (1.5 mg/l)
TDI	16 µg/kg bw, based on a BMDL10 of 4.7 mg/kg bw per day for neurological effects (decreased colour vision) observed in an occupational study and applying an uncertainty factor of 300 (10 each for inter- and intra-species variability and 3 for extrapolation from an occupational study with intermittent exposure)
Limit of detection	0.002–0.008 µg/l by GC with ECD after liquid–liquid extraction; 0.02–0.05 µg/l by purge-and-trap capillary GC with PD and ECD in series; 0.036 µg/l by volatile organic compound analysis with GC-MS; and 0.05–0.14 µg/l by purge-and-trap capillary GC-MS