

## Arizona Cleanup Standards for Hydrocarbon Contaminated Groundwater

Product	Parameter/ Constituent	Lab Test Protocol & Number <sup>1</sup>	Aquifer Water Quality Standard (AWQS)
Petroleum Derived Products	Benzene	EPA 8021, 8260	5.0 ppb
	Toluene	EPA 8021, 8260	1,000 ppb
	Ethylbenzene	EPA 8021, 8260	700 ppb
	Xylenes, Total	EPA 8021, 8260	10,000 ppb
	Benzo(a)pyrene	EPA 8310	0.2 ppb
	1,2- dichloroethane (DCA)	EPA 601, 624, 8260	5 ppb
	1,2- dibromoethane (EDB)	EPA 601, 504	0.05 ppb
	MTBE	EPA 8021, 8260, 602, 624	11 ppb*

<sup>1</sup> Current EPA Method that is Arizona Department of Health Services (ADHS) certified. An equivalent ADHS certified method can substitute.

\* Arizona does not have an established Aquifer Water Quality Standard for MTBE. This is a Risk Based Level.

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## Arizona Cleanup Standards for Hydrocarbon Contaminated Soil

Product	Parameter/ Constituent	Lab Test Protocol & Number <sup>1</sup>	Notification Level	Cleanup Level Residential*	Cleanup Level Non-Residential(1)*	
Petroleum Derived Products**	Benzene	EPA 8260	MRL	0.65mg/kg	1.4mg/kg	
	<i>n</i> -Butyl benzene	EPA 8260	MRL	240mg/kg**	240mg/kg**	
	<i>sec</i> -Butyl benzene	EPA 8260	MRL	220mg/kg**	220mg/kg**	
	<i>tert</i> -Butyl benzene	EPA 8260	MRL	390mg/kg**	390mg/kg**	
	Carbon disulfide	EPA 8260	MRL	360mg/kg	360mg/kg	
	Cumene (isopropyl benzene)	EPA 8260	MRL	92mg/kg**	92mg/kg**	
	Cyclohexane	EPA 8260	MRL	140mg/kg**	140mg/kg**	
	Cyclohexanone	EPA 8260	MRL	310,000mg/kg	1,000,000mg/kg***	
	1,2-Dichloroethane (DCA)	EPA 8260	MRL	<b>0.28/2.8mg/kg</b>	6.0mg/kg	
	Ethylbenzene	EPA 8260	MRL	1,500mg/kg	2,700mg/kg	
	Ethylene dibromide (dibromoethane, EDB)	EPA 8260	MRL	<b>0.029/0.29mg/kg</b>	0.63mg/kg	
	<i>n</i> -Hexane	EPA 8260	MRL	110mg/kg**	110mg/kg**	
	Methyl cyclohexane	EPA 8260	MRL	230mg/kg**	230mg/kg**	
	Methyl ethyl ketone (2-butanone, MEK)	EPA 8260	MRL	23,000mg/kg	34,000mg/kg**	
		Methyl isobutyl ketone 4-methyl-2-pentanone, MIBK)	EPA 8260	MRL	5,300mg/kg	17,000mg/kg**
	Methyl <i>tert</i> -butyl ether (MTBE)	EPA 8260	MRL	<b>32/320mg/kg</b>	710mg/kg	
	<i>n</i> -propyl benzene	EPA 8260	MRL	240mg/kg**	240mg/kg**	

	Toluene	EPA 8260	MRL	650mg/kg**	650mg/kg**
	1,2,4-Trimethyl benzene	EPA 8260	MRL	52mg/kg	170mg/kg
	1,3,5-Trimethyl benzene	EPA 8260	MRL	21mg/kg	70mg/kg
	Total Xylenes	EPA 8260	MRL	270mg/kg	420mg/kg**
	Acenaphthene	EPA 8270 or 8310	MRL	3700mg/kg	29,000mg/kg
	Anthracene	EPA 8270 or 8310	MRL	22,000mg/kg	240,000mg/kg
	Benzo(a)anthracene	EPA 8270 or 8310	MRL	<b>0.69/6.9mg/kg</b>	21mg/kg
	Benzo(a)-pyrene	EPA 8270 or 8310	MRL	<b>0.069/0.69mg/kg</b>	2.1mg/kg
	Benzo(b)flouranthene	EPA 8270 or 8310	MRL	<b>0.69/6.9mg/kg</b>	21mg/kg
	Benzo(k)flouranthene	EPA 8270 or 8310	MRL	<b>6.9/69mg/kg</b>	210mg/kg
	Chrysene	EPA 8270 or 8310	MRL	<b>68/680mg/kg</b>	2000mg/kg
	Dibenzo(a,h)anthracene	EPA 8270 or 8310	MRL	<b>0.069/0.69mg/kg</b>	2.1mg/kg
	Flouranthene	EPA 8270 or 8310	MRL	2300mg/kg	22,000mg/kg
	Flourene	EPA 8270 or 8310	MRL	2700mg/kg	26,000mg/kg
	Indeno(1,2,3-cd) pyrene	EPA 8270 or 8310	MRL	<b>0.69/6.9mg/kg</b>	21mg/kg
	Naphthalene	EPA 8270 or 8310	MRL	56mg/kg	190mg/kg
	Pyrene	EPA 8270 or 8310	MRL	2300mg/kg	29,000mg/kg

<sup>1</sup> Current EPA Method that is Arizona Department of Health Services (ADHS) certified. An equivalent ADHS certified method can substitute.

**Bold #'s (e.g. 0.28/2.8mg/kg)** - First number represents  $1 \times 10^{-6}$  excess lifetime cancer risk (ELCR) and the second number represents a  $1 \times 10^{-5}$  ELCR.

\* Site specific human health risk assessments exist and apply here. All clean-up levels must protect against impacts to groundwater quality and ecological receptors.

\*\* Denotes this Cleanup Level is based on a 100% saturation ceiling limit for non-volatile organic chemicals

\*\*\* This SRL is based on a ceiling level of allowable contaminant in soil at 1 kilogram chemical per kilogram soil, which is physically not possible. The concentration resulting in a health risk is determined to be greater than this cleanup level. The applicable cleanup level is the lesser of the ADEQ

(1) Selection of nonresidential clean-up category requires Declaration of Environmental Use Restriction (DEUR) to be filed on deed property.

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