

Table 86-1: Response to Question 86: Updated TCLP Limits

	Contaminant	TCLP Limit (mg/L)	Source of TCLP limits	Screen level (mg/kg)	Kate Valley consent (2016)	Redvale consent (2017)	Updated TCLP Limit for ARL (mg/L)
Metals	Antimony	0.6	1a	12	0.6	-	0.6
	Arsenic	5	1	500 <sup>2</sup>	5	5	5
	Barium	100	1	2,000	100	100	100
	Boron	20	1a	400	20	-	20
	Cadmium	1	1	100 <sup>2</sup>	1	1	1
	Chromium	5	1	500 <sup>2</sup>	5	5	5
	Lead	5	1	500 <sup>2</sup>	5	5	5
	Mercury	0.2	1	4	0.2	0.2	0.2
	Nickel	10	1a	200	10	-	10
	Selenium	1	1	20	1	1	1
	Silver	5	1	100	5	5	5
	Zinc - ASR	500	3	30,000			500
Other inorganics	Cyanides (reactive)	50	1	1,000	-	-	50
	Fluoride	200	1a	4,000	200	-	200
	Sulphides (reactive)	50	1	1,000	-	-	50
Aromatic hydrocarbons	Benzene	0.5	1	10	0.5	0.5	0.5
	Toluene	100	1a	2000	100	-	100
	Ethylbenzene	50	1a	1000	50	-	50
	Xylenes	100	1a	2000	100	-	6
	m-cresol	200	1	4,000	-	-	200
	o-cresol	200	1	4,000	-	-	200
	p-cresol	200	1	4,000	-	-	200
Total cresol	200	1	4,000	-	200	200	
Pesticides and herbicides	Aldrin + Dieldrin	0.00008	1c	0.008 <sup>2</sup>	0.00008	-	0.00008
	Chlordane	0.03	1	3 <sup>2</sup>	-	0.03	0.03
	Dicofol	0.05	1b	5 <sup>2</sup>	-	-	0.05
	Endrin	0.02	1	2 <sup>2</sup>	-	0.02	0.02
	Heptachlor	0.008	1	0.8 <sup>2</sup>	0.008	-	0.008
	Lindane	0.4	1	40 <sup>2</sup>	-	0.4	0.4
	Methoxychlor	10	1	1,000 <sup>2</sup>	10	-	10
	Pentachlorophenol	100	1	10,000	100	-	100
	Toxaphene	0.5	1	50 <sup>2</sup>	-	0.5	0.5
	2,4-dichlorophenoxyacetic acid	10	1	200	10	10	10
2,4,5-trichlorophenoxypropionic acid	1	1	20	-	1	1	
Other organics	2,4-dinitrotoluene	0.13	1	2.6	-	0.13	0.13
	Nitrobenzene	2	1	40	-	2	2
	Methylethyl ketone	200	1	4,000	-	200	200
	Pyridine	5	1	100	-	5	5
	Styrene	6	1a	600 <sup>2</sup>	6	-	6
	Tributyl tin oxide	3	1	300 <sup>2</sup>	3	-	3
	PFAS	0.005	1d	0.1			0.005
PFOA	0.02	1d	0.4			0.02	
Chlorinated organics	Carbon tetrachloride	0.5	1	10	-	0.5	0.5
	Chloroform	6	1	120	-	6	6
	Tetrachlorethene	0.7	1	14	-	0.7	0.7
	Trichloroethene	0.7	1	14	-	0.5	0.7
	1,2-dichloroethane	0.5	1	10	-	0.5	0.5
	1,1-dichloroethene	0.7	1	14	10	10	0.7
	Vinyl chloride	0.2	1	20	0.2	0.2	0.2
	Chlorobenzene	100	1	2,000	-	100	100
	1,4-dichlorobenzene	7.5	1	150	-	7.5	7.5
	Hexachloro-1,3-butadiene	0.5	1	50 <sup>2</sup>	-	0.5	0.5
	Hexachlorobenzene	0.13	1	13 <sup>2</sup>	-	0.13	0.13
	Hexachloroethane	3	1	300 <sup>2</sup>	-	3	3
	Polychlorinated biphenyls	50	1	5,000 <sup>2</sup>	-	-	50
	2,4,5-trichlorophenol	400	1	8,000			400
2,4,6-trichlorophenol	2	1	40			2	

<sup>1</sup> WasteMINZ Guidelines Table D-1 Class 1 Waste Acceptance Criteria for Inorganic and organic Elements (based on US EPA 40 CFR 261.24)

<sup>1a</sup> WasteMINZ Guidelines Table D-2 Class 1 Waste Acceptance Criteria for Inorganic and Organic Elements (based on the MFE Class A guidelines )

<sup>1b</sup> TCLP limit is 100x water quality guidelines

<sup>1c</sup> MFE Class A guidelines

<sup>1d</sup> TCLP limits are based on 4x the expected leachate concentration for landfills accepting more than 50% municipal waste.

<sup>2</sup> for these contaminants, the screening value is 100 x TCLP, based on WMNZ data for metals, or  $K_{ow} > 10,000$  and  $K_{oc} > 300$  for organics.

All other screening limits are 20 x TCLP, based on MFE 2004 Class A guidelines and definition of TCLP test

<sup>3</sup> Limit for zinc in Automobile Shredder Residue is based on review of data for ASR waste received at Redvale Landfill

Table 86-2: Response to Question 86: Updated TCLP Limits

	Contaminant	TCLP Limit (mg/L)	Source of TCLP limits	NZDWS (mg/L)	US DWS (mg/L)	Factor by which US DWS exceeds NZ DWS	Updated TCLP Limit for ARL (mg/L)
Metals	Antimony	<u>0.6</u>	1a	0.02	0.006	0.30	0.6
	Arsenic	5	1	0.01	0.01	1.0	5
	Barium	100	1	0.7	2	2.9	100
	Boron	<u>20</u>	1a	1.4	-	-	20
	Cadmium	1	1	0.004	0.005	1.3	1
	Chromium	5	1	0.05	0.1	2.0	5
	Lead	5	1	0.01	0.015	1.5	5
	Mercury	0.2	1	0.007	0.002	0.29	0.2
	Nickel	<u>10</u>	1a	0.08	-	-	10
	Selenium	1	1	0.01	0.05	5.0	1
	Silver	5	1	-	-	-	5
	Zinc - ASR	500	3				500
Other inorganics	Cyanides (reactive)	50	1	0.6	0.2	0.33	50
	Fluoride	<u>200</u>	1a	1.5	4	2.7	200
	Sulphides (reactive)	50	1			-	50
Aromatic hydrocarbons	Benzene	0.5	1	0.01	0.005	0.50	0.5
	Toluene	<u>100</u>	1a	0.8	1	1.3	100
	Ethylbenzene	<u>50</u>	1a	0.3	0.7	2.3	50
	Xylenes	<u>100</u>	1a	0.6	10	17	6
	m-cresol	200	1			-	200
	o-cresol	200	1			-	200
	p-cresol	200	1			-	200
	Total cresol	200	1			-	200
Pesticides and herbicides	Aldrin + Dieldrin	<u>0.00008</u>	1c				0.00008
	Chlordane	0.03	1	0.0002	0.002	10	0.03
	Dicofol	<u>0.05</u>	1b			-	0.05
	Endrin	0.02	1	0.001	0.002	2.0	0.02
	Heptachlor	0.008	1		0.0004	-	0.008
	Lindane	0.4	1	0.002	0.0002	0.10	0.4
	Methoxychlor	10	1	0.02	0.04	2.0	10
	Pentachlorophenol	100	1	0.009	0.001	0.11	100
	Toxaphene	0.5	1		0.003	-	0.5
	2,4-dichlorophenoxyacetic acid	10	1	0.04	0.07	1.8	10
2,4,5-trichlorophenoxypropionic acid	1	1	0.01		-	1	
Other organics	2,4-dinitrotoluene	0.13	1			-	0.13
	Nitrobenzene	2	1			-	2
	Methylethyl ketone	200	1			-	200
	Pyridine	5	1			-	5
	Styrene	<u>6</u>	1a	0.03	0.1	3.3	6
	Tributyl tin oxide	3	1			-	3
	PFAS	0.02	1d				0.02
	PFOA	0.005	1d				0.005
Chlorinated organics	Carbon tetrachloride	0.5	1	0.005	0.005	1.0	0.5
	Chloroform	6	1	0.4		-	6
	Tetrachlorethene	0.7	1	0.05	0.005	0.10	0.7
	Trichloroethene	0.7	1	0.02	0.005	0.25	0.7
	1,2-dichloroethane	0.5	1	0.03	0.005	0.17	0.5
	1,1-dichloroethene	0.7	1	0.06	0.007	0.12	0.7
	Vinyl chloride	0.2	1	0.0003	0.002	6.7	0.2
	Chlorobenzene	100	1	0.01	0.1	10	100
	1,4-dichlorobenzene	7.5	1	0.4		-	7.5
	Hexachloro-1,3-butadiene	0.5	1	0.0007		-	0.5
	Hexachlorobenzene	0.13	1		0.001	-	0.13
	Hexachloroethane	3	1			-	3
	Polychlorinated biphenyls	50	1			-	50
	2,4,5-trichlorophenol	400	1			-	400
2,4,6-trichlorophenol	2	1	0.2		-	2	

<sup>1</sup> WasteMINZ Guidelines Table D-1 Class 1 Waste Acceptance Criteria for Inorganic and organic Elements (based on US EPA 40 CFR 261.24)

<sup>1a</sup> WasteMINZ Guidelines Table D-2 Class 1 Waste Acceptance Criteria for Inorganic and Organic Elements (based on the MFE Class A guidelines )

<sup>1b</sup> TCLP limit is 100x water quality guidelines

<sup>1c</sup> MFE Class A guidelines

<sup>1d</sup> TCLP limits are based on 4x the expected leachate concentration for landfills accepting more than 50% municipal waste.

<sup>2</sup> for these contaminants, the screening value is 100 x TCLP, based on WMNZ data for metals, or  $K_{ow} > 10,000$  and  $K_{oc} > 300$  for organics.

All other screening limits are 20 x TCLP, based on MFE 2004 Class A guidelines and definition of TCLP test

<sup>3</sup> Limit for zinc in Automobile Shredder Residue is based on review of data for ASR waste received at Redvale Landfill