

Table 1. Oral reference dose (*RfD*) values and slope factors (*Sf*) of metal considered to be cancerogeneous.

Heavy metal	<i>RfD</i> (mg kg ⁻¹)*	<i>Sf</i> (mg kg ⁻¹ día ⁻¹)*
Cu*	0.037	-
Ni*	0.02	0.1
Pb**	0.036	0.0085
Cd**	0.001	0.005
Zn*	0.3	-

*US-EPA (2017)

** Bermúdez *et al.* (2011).

Table 2. Metal concentrations in mg kg⁻¹ in samples of different varieties of artisan cheeses made in the state of Tabasco, Mexico.

cheese variety	Municipality	Pb	Cd	Ni	Cu	Zn	Fe
double cream	Tenosique	0.0047	0.0027	0.0002	0.0305	0.0443	62.48
double cream	Tenosique	0.0040	0.0021	0.0054	0.0212	0.0204	61.79
oaxaca	Tenosique	0.0035	0.0000	0.0024	0.0354	0.1494	58.48
oaxaca	Tenosique	0.0047	0.0004	0.0048	0.0059	0.0496	62.41
oaxaca	Tenosique	0.0028	0.0001	0.0032	0.0437	0.2443	72.76
oaxaca	Balancán	0.0029	0.0015	0.0005	0.0098	0.0823	59.65
cream or soup	Balancán	0.0046	0.0031	0.0096	0.0219	0.0532	62.73
double cream	Balancán	0.0043	0.0019	0.0037	0.0269	0.1271	68.26
double cream	Balancán	0.0057	0.0037	0.0012	0.0129	0.0904	55.97
cream or soup	Balancán	0.0078	0.0049	0.0018	0.0304	0.2418	60.04
fresh	Balancán	0.0068	0.0037	0.0042	0.0078	0.2785	58.38
oaxaca	Balancán	0.0041	0.0001	0.0041	0.0069	0.1554	58.39
cream or soup	Centro	0.0092	0.0063	0.0078	0.0402	0.0808	62.39
panela	Centro	0.0043	0.0019	0.0004	0.0059	0.1436	58.82
oaxaca	Centro	0.0044	0.0031	0.0005	0.0083	0.0499	56.92
oaxaca	Centro	0.0036	0.0016	0.0011	0.0102	0.0317	57.67
mozzarella	Huimanguillo	0.0035	0.0026	0.0007	0.0112	0.1019	63.58
provolone	Huimanguillo	0.0048	0.0001	0.0015	0.0275	0.1653	58.52
fresh	Huimanguillo	0.0034	0.0002	0.0033	0.0081	0.2659	68.29
panela	Huimanguillo	0.0043	0.0075	0.0019	0.0117	0.2542	56.07
panela	Huimanguillo	0.0039	0.0013	0.0009	0.0154	0.2927	56.93
fresh	Huimanguillo	0.0005	0.0004	0.0022	0.0098	0.2435	59.46
fresh	Huimanguillo	0.0041	0.0002	0.0021	0.0108	0.2447	58.56
panela	Huimanguillo	0.0047	0.0021	0.0034	0.0346	0.2231	57.98
double cream	Huimanguillo	0.0004	0.0047	0.0048	0.0298	0.0271	58.72
panela	Huimanguillo	0.0044	0.0001	0.0038	0.0135	0.2738	56.61
double cream	Huimanguillo	0.0038	0.0027	0.0069	0.0356	0.1008	56.18
panela	Huimanguillo	0.0031	0.0011	0.0027	0.0093	0.3008	67.77
oaxaca	Huimanguillo	0.0043	0.0019	0.0042	0.0136	0.2645	69.53
panela	Huimanguillo	0.0039	0.0003	0.0056	0.0115	0.2842	64.21
cream or soup	Huimanguillo	0.0063	0.0027	0.0087	0.0219	0.1135	63.98
double cream	Huimanguillo	0.0039	0.0035	0.0092	0.0298	0.0413	67.28
panela	Huimanguillo	0.0042	0.0009	0.0052	0.0167	0.2348	63.61
fresh	Huimanguillo	0.0041	0.0006	0.0034	0.0101	0.2598	63.34
oaxaca	Huimanguillo	0.0037	0.0009	0.0023	0.0177	0.1902	62.79
oaxaca	Huimanguillo	0.0064	0.0000	0.0015	0.0198	0.2295	62.56
cream or soup	Huimanguillo	0.0044	0.0026	0.0092	0.0257	0.0961	63.03
oaxaca	Huimanguillo	0.0084	0.0007	0.0039	0.0271	0.2095	61.47
oaxaca	Huimanguillo	0.0051	0.0000	0.0049	0.0209	0.1774	62.78
oaxaca	Huimanguillo	0.0043	0.0014	0.0044	0.0189	0.1805	63.15
double cream	Huimanguillo	0.0052	0.0156	0.0132	0.0378	0.0912	72.08
cream or soup	Huimanguillo	0.0125	0.0039	0.0032	0.0279	0.1121	61.77
oaxaca	Huimanguillo	0.0049	0.0011	0.0029	0.0088	0.1962	61.63
double cream	Huimanguillo	0.0072	0.0084	0.0042	0.0355	0.0708	62.04
	average	0.0047±0.002	0.0023±0.002	0.0039±0.004	0.0199 ±0.02	0.1611±0.18	61.84±4.23
	maximum	0.0125	0.0056	0.0132	0.0437	0.3008	72.76
	minimum	0.0004	0	0.0002	0.0059	0.0204	55.97

Table 3. Metal concentrations in mg kg⁻¹ in samples of different varieties of artisan cheeses made in the state of Chiapas, Mexico.

cheese variety	Municipality	Pb	Cd	Ni	Cu	Zn	Fe
double cream	Solosuchiapa	0.0029	0.0041	0.0063	0.0177	0.1114	65.34
oaxaca	Solosuchiapa	0.0081	0.0000	0.0019	0.0098	0.2669	58.52
panela	Solosuchiapa	0.0007	0.0003	0.0012	0.0072	0.3308	60.89
cotija	Solosuchiapa	0.0047	0.0051	0.0009	0.0113	0.2047	65.98
panela	Solosuchiapa	0.0078	0.0034	0.0017	0.0059	0.1325	63.75
panela	Solosuchiapa	0.0067	0.0013	0.0031	0.0154	0.2112	72.94
cotija	Solosuchiapa	0.0056	0.0043	0.0043	0.0337	0.1664	63.33
cotija	Juárez	0.0047	0.0038	0.0075	0.0283	0.3708	67.89
cotija	Juárez	0.0039	0.0037	0.0056	0.0235	0.2157	64.52
cotija	Juárez	0.0049	0.0062	0.0037	0.0319	0.2654	62.19
cream or soup	Juárez	0.0051	0.0055	0.0091	0.0288	0.0766	70.49
oaxaca	Juárez	0.0083	0.0009	0.0016	0.0112	0.1839	57.96
double cream	Juárez	0.0069	0.0077	0.0015	0.0267	0.0748	64.86
double cream	Juárez	0.0035	0.0044	0.0039	0.0329	0.3699	65.65
oaxaca	Juárez	0.0033	0.0017	0.0052	0.0107	0.3145	65.79
oaxaca	Juárez	0.0047	0.0033	0.0044	0.0198	0.4369	76.67
oaxaca	Catazajá	0.0041	0.0013	0.0038	0.0067	0.2254	70.74
oaxaca	Catazajá	0.0003	0.0021	0.0021	0.0138	0.0677	64.91
oaxaca	Catazajá	0.0031	0.0027	0.0029	0.0103	0.2691	68.37
double cream	Catazajá	0.0075	0.0033	0.0078	0.0303	0.0642	65.87
cream or soup	Catazajá	0.0069	0.0031	0.0067	0.0281	0.0742	64.39
double cream	Catazajá	0.0084	0.0037	0.0025	0.0259	0.0787	72.33
oaxaca	Catazajá	0.0041	0.0011	0.0030	0.0155	0.2228	64.15
double cream	Catazajá	0.0069	0.0029	0.0039	0.0281	0.0665	65.94
double cream	Catazajá	0.0053	0.0033	0.0046	0.0277	0.0776	64.68
oaxaca	Catazajá	0.0008	0.0046	0.0026	0.0117	0.1505	64.02
cotija	Catazajá	0.0088	0.0047	0.0079	0.0267	0.2081	72.09
cotija	Catazajá	0.0045	0.0032	0.0061	0.0198	0.1735	64.75
cotija	Catazajá	0.0081	0.0041	0.0044	0.0319	0.1996	65.82
panela	Catazajá	0.0005	0.0007	0.0025	0.0167	0.2697	63.81
cotija	Catazajá	0.0041	0.0046	0.0027	0.0337	0.1908	66.58
panela	Catazajá	0.0011	0.0002	0.0006	0.0219	0.2364	64.33
panela	Catazajá	0.0009	0.0001	0.0019	0.0201	0.2062	67.51
double cream	Reforma	0.0067	0.0049	0.0054	0.0354	0.0489	55.82
panela	Reforma	0.0022	0.0023	0.0009	0.0285	0.1395	59.86
fresh	Reforma	0.0067	0.0011	0.0003	0.0197	0.1879	67.26
double cream	Reforma	0.0089	0.0051	0.0058	0.0205	0.0421	57.61
cream or soup	Reforma	0.0056	0.0045	0.0041	0.0322	0.1341	58.04
double cream	Reforma	0.0073	0.0026	0.0036	0.0167	0.0912	65.87
oaxaca	Reforma	0.0062	0.0019	0.0005	0.0139	0.3378	65.83
oaxaca	Reforma	0.0033	0.0034	0.0022	0.0112	0.2359	97.41
oaxaca	Reforma	0.0056	0.0008	0.0019	0.0209	0.1832	67.61
oaxaca	Reforma	0.0063	0.0037	0.0035	0.0223	0.2877	57.62
oaxaca	Reforma	0.0034	0.0003	0.0007	0.0202	0.2301	64.13
	average	0.0051 ±0.002	0.0023±0.002	0.0031±0.004	0.0202±0.022	0.194 ±0.21	65.76±6.61
	maximum	0.0089	0.0077	0.0091	0.0354	0.437	97.41
	minimum	0.0003	0.0000	0.0003	0.0059	0.0421	55.82