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Régio al Scree i g Levels (RSLs) - Ge eric Tables

Tables as of: May 2022 i

Regio al Scree i g Levels (RSLs) i

- Home Page <https://epa.gov/r sk/reg onal-screen ng-levels-rsls>
- User's Gu de <https://epa.gov/ri sk/reg onal-screen ng-levels-rsls-users-gu de>
- What's ew <https://epa.gov/r sk/reg onal-screen ng-levels-rsls-whats-new>
- Frequent Quest ons <https://epa.gov/r sk/reg onal-screen ng-levels-frequent-quest ons>
- Equat ons <https://epa.gov/r sk/reg onal-screen ng-levels-rsls-equat ons>
- RSL alculator EXIT <https://epa-prgs.ornl.gov/cg -b n/chem cals/csl_search>
- Gener c Tables <https://epa.gov/r sk/reg onal-screen ng-levels-rsls-gener c-tables>
- ontact Us <https://epa.gov/r sk/forms/contact-us-about-reg onal-screen ng-levels-rsls>

For ass stance/quest ons please use the Reg onal Screen ng Levels (RSLs) contact us <https://epa.gov/r sk/forms/reg onal-screen ng-levels-rsls-contact-us> page.

The RSL and RML default values are ava lable n the Apple Store and the Google Play Store for use on mob le dev ces.

The screen ng level (SL) tables are ava lable for download n Excel and PDF formats. All tables are presented w th target cancer r sk (TR) of 1E-06, however, tables are presented w th target hazard quot ents (THQ) of 1.0 and 0.1. Use the tables appropr ate for your reg on. These tables are cons dered ready for use. The tables conta n both SL calculat ons and the tox c ty values that were used. The download tables do not nclude the ngest on of f sh exposure pathway, the outdoor worker and the ndoor worker exposure to so l exposure pathway that are presented n the User's Gu de. These exposure pathways can be cons dered on a s te-spec f c bas s n the alculator EXIT <https://epa-prgs.ornl.gov/cg -b n/chem cals/csl_search>.

- If you w sh to rece ve not f cat ons when RSLs are updated, use the S gnup Form <https://epa.gov/r sk/forms/rece ve-not f cat ons-reg onal-screen ng-level-updates> to learn more.
- For RSL quest ons please use the RSL ontact Us <https://epa.gov/r sk/forms/reg onal-screen ng-levels-rsls-contact-us> page.
- For general r sk assessment quest ons, separate from the RSLs, please use the General R sk Assessment ontact <https://epa.gov/r sk/forms/contact-us-about-r sk-assessment> page.

Screening Levels	(TR=1E-06 THQ=1.0)	(TR=1E-06 THQ=1.0)	(TR=1E-06 THQ=0.1)
Summary Table	PDF <https://semspub.epa.gov/src/document/hq/402369> i	XLS <https://semspub.epa.gov/src/document/hq/402370> i	PDF <https://semspub.epa.gov/src
Res dent So l i	PDF <https://semspub.epa.gov/src/document/hq/402373>	XLS <https://semspub.epa.gov/src/document/hq/402374>	PDF <https://semspub.epa.gov/src

SEMS Doc ID 666834

Screening Le e	R=1E-06 HQ=1.0)	R=1E-06 HQ=1.0)	R=1E-06 HQ=0.1)
Composi e Worker Soil	PDF <h ps://semspub.epa.gov/src/documen /hq/402377>	XLS <h ps://semspub.epa.gov/src/documen /hq/402378>	PDF <h ps://semspub.epa.gov/src
Residen Air	PDF <h ps://semspub.epa.gov/src/documen /hq/402381> t	XLS t <h ps://semspub.epa.gov/src/documen /hq/402382>	PDF <h ps://semspub.epa.gov/src
Composi e Worker Air	PDF <h ps://semspub.epa.gov/src/documen /hq/402385>	XLS <h ps://semspub.epa.gov/src/documen /hq/402386>	PDF <h ps://semspub.epa.gov/src
Residen Tapwa er	PDF <h ps://semspub.epa.gov/src/documen /hq/402389>	XLS <h ps://semspub.epa.gov/src/documen /hq/402390>	PDF <h ps://semspub.epa.gov/src
Residen Soil o Groundwa er	PDF <h ps://semspub.epa.gov/src/documen /hq/402393>	XLS <h ps://semspub.epa.gov/src/documen /hq/402394> t	PDF <h ps://semspub.epa.gov/src
Composi e Table (Every Table)	PDF <h ps://semspub.epa.gov/src/documen /hq/402397>	XLS <h ps://semspub.epa.gov/src/documen /hq/402398>	PDF <h ps://semspub.epa.gov/src t

Other ab e	DF t	XLS
Chemical Specific t Parame ers	PDF <h tps://semspub.epa.gov/src/documen /hq/402401>	XLS <h tps://semspub.epa.gov/src/documen /hq/402402>
Subchronic Toxici ytValues t	PDF <h tps://semspub.epa.gov/src/documen /hq/402403>	XLS <h tps://semspub.epa.gov/src/documen /hq/402404>

De cription of annotation and abbre iation u ed in RSL tab e and ca cu ator output t

Annotation/Abbre iation	Definition	Link to detai ed di cu ion
oxicity Re ated t		
CAS	Chemical Abstrac s t Services Regis ry Number	CAS t EXIT t <h tps://www.cas.org/> is a unique numerical iden ifier assigned to every chemical substance described in he open scien ific li era ure, including organic and inorganic compounds.
SF, SFO, t CSF_o t	Oral Slope Fac or (mg/kg-day)-1 t	See sec ion 2.3.3 <h tps://epa.gov/risk/regional-screening-levels-rsls-users-guide#oxici y> of he user's guide t
IUR t t	Inhala ion Uni Risk (µg/m3)-1 t	See sec ion 2.3.4 <h tps://epa.gov/risk/regional-screening-levels-rsls-users-guide#oxici y> of he user's guide t
RfD or RfD_o t	Chronic Oral Reference Dose t (mg/kg-day)	See sec ion 2.3.1 <h tps://epa.gov/risk/regional-screening-levels-rsls-users-guide#oxici y> of he user's guide t
RfC t	Chronic Inhala ion t Reference Concen ra ion (mg/m3) t	See sec ion 2.3.2 <h tps://epa.gov/risk/regional-screening-levels-rsls-users-guide#oxici y> of he user's guide t t

Annotation/Abbreviation	Definition	Links to detailed discussion
I or IRIS	EPA's Integrated Risk Information System	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the IRIS <https://epa.gov/iris> website.
P or PPRTV	The Provisional Peer Reviewed Toxicity Values	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the PPRTV EXIT <https://hhpprtv.ornl.gov/> website.
D or OW	EPA Office of Water Drinking Water Health Advisories and Human Health Toxicity Assessments	See section 2.5 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#mcls> of the user's guide and the OW <https://epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos> website.
O or OPP	EPA's Office of Pesticide Programs Human Health Benchmarks for Pesticides	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the Human Health Benchmarks for Pesticides <https://epa.gov/pesticides/updated-list-human-health-benchmarks-pesticides-drinking-water-available> website.
A or ATSDR	The Agency for Toxic Substances and Disease Registry minimal risk levels (MRLs)	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the ATSDR EXIT <https://www.atsdr.cdc.gov/mrls/mrllist.asp> website.
C or Cal	The California Environmental Protection Agency Office of Environmental Health Hazard Assessment	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the Cal EPA OEHHA EXIT <https://oehha.ca.gov/> website.
X or SCREEN	Screening toxicity values in an appendix to certain PPRTV assessments	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the PPRTV EXIT <https://hhpprtv.ornl.gov/> website.
H	The EPA Superfund program's Health Effects Assessment Summary Table	See section 2.3 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide and the HEAST EXIT <https://epa-heast.ornl.gov/> website.

Annotation/Abbreviation Definition		Links to detailed discussion
E	Toxicity Equivalence Factors (TEF) applied	See section 2.3.5 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide for description of TEFs for dioxins
W	Relative Potency Factors (RPFs) applied	See section 2.3.6 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#toxicity> of the user's guide for description of RPFs for polycyclic aromatic hydrocarbons (PAHs)
G	See user's guide section 5	See section 5 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#special> of the user's guide for special considerations.
M	Mutagen	See section 5.17 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#mutagens> of the user's guide. Some of the cancer causing analytes in this tool operate by a mutagenic mode of action for carcinogenesis. Special equations are used.
GIABS	Fraction of contaminant absorbed in gastrointestinal tract (unitless)	See Exhibit 4-1 <https://epa.gov/superfund/superfund-soil-screening-guidance> of the soil screening guidance. Note: if the GIABS is >50% then it is set to 100% for the calculation of dermal toxicity values.
ABS or ABS_d	Fraction of contaminant absorbed dermally from soil (unitless)	See Exhibit 3-4 <https://epa.gov/superfund/superfund-soil-screening-guidance> of the soil screening guidance
C_{sat}	Soil saturation concentration (mg/kg)	See section 5.12 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#csat> of the user's guide. The soil saturation concentration, C_{sat}, corresponds to the contaminant concentration in soil at which the absorptive limits of the soil particles, the solubility limits of the soil pore water, and saturation of soil pore air have been reached.
RBA	Relative bioavailability factor	See section 5.10 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#arsenic> of the user's guide. Arsenic screening levels for ingestion of soil are now calculated with the default relative bioavailability factor <https://epa.gov/superfund/soil-bioavailability-superfund-sites-guidance> (RBA) of 0.6.
RSL Related		
SL	Screening Level	See section 1 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#intro> of the user's guide and FAQ 1 <https://epa.gov/risk/regional-screening-levels-frequent-questions#fq1>.
TR	Target Risk	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide
THQ	Target Hazard Quotient	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide and FAQ 6 <https://epa.gov/risk/regional-screening-levels-frequent-questions#fq6>.

Annotation/Abbreviation	Definition	Links to detailed discussion
THQ	Target Hazard Quotient	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide. and FAQ 6 <https://epa.gov/risk/regional-screening-levels-frequent-questions#fq6>.
SSL	Soil Screening Level	See section 4.8 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#soiltogw> of the user's guide
c or ca	Cancer risk driving screening level	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide Cancer and noncancer screening levels are represented in the supporting tables. The most protective value is chosen for the summary table
or cn	Noncancer risk driving screening level	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide Cancer and noncancer screening levels are represented in the supporting tables. The most protective value is chosen for the summary table
*	The noncancer screening level is less than 100 times the cancer screening level	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide Some users of this SL Table may pick to multiply the cancer SL concentrations by 100 to set 'action levels' for triggering remediation or to set less stringent cleanup levels for a specific site after considering non-risk-based factors such as ambient levels, detection limits, or technological feasibility
**	The noncancer screening level is less than 10 times the cancer screening level	See section 5.14 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#target> of the user's guide Some users of this SL Table may pick to multiply the cancer SL concentrations by 10 to set 'action levels' for triggering remediation or to set less stringent cleanup levels for a specific site after considering non-risk-based factors such as ambient levels, detection limits, or technological feasibility
m or max	The screening level which has exceeded the theoretical maximum concentration	See section 5.13 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#ceiling> of the user's guide The ceiling limit of 10+5 mg/kg is equivalent to a chemical representing 10% by weight of the soil sample. At this contaminant concentration (and higher), the assumptions for soil contact may be violated (for example, soil adherence and wind-borne dispersion assumptions) due to the presence of the foreign substance itself.
s or sat	The screening level which has exceeded the theoretical absorption limit of the soil.	See section 5.12 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#csat> of the user's guide The soil saturation concentration, C_{sat}, corresponds to the contaminant concentration in soil at which the absorptive limits of the soil particles, the solubility limits of the soil pore water, and saturation of soil pore air have been reached. Above this concentration, the soil contaminant may be present in free phase (i.e., an aqueous phase liquid or NAPLs) for contaminants that are liquid at ambient soil temperatures and pure solid phases for compounds that are solid at ambient soil temperatures).
DAF	Dilution attenuation factor	See section 4.8.5 <https://epa.gov/risk/regional-screening-levels-rsls-users-guide#soiltogw> of the user's guide
U	User-provided	In user-provided mode all the input values are given a reference of U.
Toxicity Relationship		

Annotation/Abbreviation	Definition	Links to detailed discussion
ppm	parts per million	ppm is the number of units of mass of a contaminant per million units of total mass.
ppb	parts per billion	ppb is the number of units of mass of a contaminant per billion units of total mass.
kg	kilogram	1,000 grams
mg	milligram	1,000th of a gram
µg	microgram	1,000,000th of a gram
m^3	cubic meters	A volume that is made by a cube that is 1 meter on each side.

For assistance/questions please use the Regional Screening Levels (RSLs) contact us <https://epa.gov/risk/forms/regional-screening-levels-rsls-contact-us> page. For general risk assessment questions, separate from the RSLs, please use the link below.

- Risk Assessment Home <https://epa.gov/risk>
- About Risk Assessment <https://epa.gov/risk/about-risk-assessment>
- Risk Recent Additions <https://epa.gov/risk/recent-additions-risk-assessment>
- Human Health Risk Assessment <https://epa.gov/risk/human-health-risk-assessment>
- Ecological Risk Assessment <https://epa.gov/risk/ecological-risk-assessment>
- Risk Assessment Guidance <https://epa.gov/risk/risk-assessment-guidance>
- Risk Tools and Databases <https://epa.gov/risk/human-health-risk-models-and-tools>
- Risk Management <https://epa.gov/risk/risk-management>
- Risk Messaging <https://epa.gov/risk/risk-messaging>
- Superfund Risk Assessment <https://epa.gov/risk/superfund-risk-assessment>
- Where you live <https://epa.gov/risk/where-you-live-risk-assessment>

Contact Us <https://epa.gov/risk/forms/contact-us-about-risk-assessment> to ask a question, provide feedback, or report a problem.

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