

## Passive biomonitoring using lichen (*Parmelia sulcata*) in Switzerland

See also file: *Pesticides - UNECE Protocol Lichen study 2002 (map, graphical representation of values)*

See also file: *HCHs Lichen study 2002 (map, graphical representation of values)*

$\mu\text{g}/\text{kg}$  dry substance (mean  $\pm$  SD)

Location	$\alpha$ -HCH	$\gamma$ -HCH	$\beta$ -HCH	$\delta$ -HCH	$\Sigma$ -HCH
Zurich (city)	0.6 $\pm$ 0.1	31.0 $\pm$ 27.3	0.4 $\pm$ 0.2	nd*	21.5 $\pm$ 26.2
Lucerne (city)	1.6 $\pm$ 0.5	7.4 $\pm$ 1.9	0.7	nd	9.3 $\pm$ 2.0
Lugano (city)	0.8 $\pm$ 0.2	7.6 $\pm$ 2.8	2.0 $\pm$ 0.8	0.2	9.8 $\pm$ 4.1
St. Gallen (city)	2.5 $\pm$ 1.0	22.0 $\pm$ 9.3	2.1 $\pm$ 1.8	1.1 $\pm$ 0.1	27.7 $\pm$ 11.7
Duebendorf (urban agglomeration)	1.2 $\pm$ 0.2	9.0 $\pm$ 4.0	2.7 $\pm$ 0.7	0.3 $\pm$ 0.3	13.1 $\pm$ 3.4
Basel (urban agglomeration)	1.3 $\pm$ 0.4	15.4 $\pm$ 2.4	4.7 $\pm$ 3.7	4.5 $\pm$ 2.7	25.9 $\pm$ 4.0
Wallisellen (urban agglomeration)	1.5 $\pm$ 0.4	7.6 $\pm$ 2.7	2.3	0.8 $\pm$ 0.5	10.6 $\pm$ 3.9
Wil (small town)	0.9 $\pm$ 0.5	5.9 $\pm$ 3.8	0.6 $\pm$ 0.3	0.4 $\pm$ 0.1	7.7 $\pm$ 4.6
Rorschach (small town)	4.0 $\pm$ 3.8	27.6 $\pm$ 22.4	7.2 $\pm$ 4.9	0.7 $\pm$ 0.8	39.3 $\pm$ 29.8
Gossau (small town)	0.6 $\pm$ 0.3	3.4 $\pm$ 2.4	0.2 $\pm$ 0.0	0.2 $\pm$ 0.1	4.3 $\pm$ 2.9
Thörishaus (industry)	1.6 $\pm$ 0.6	20.1 $\pm$ 11.0	15.1 $\pm$ 22.7	1.6 $\pm$ 0.6	38.3 $\pm$ 19.1
Berne (industry)	0.8 $\pm$ 0.6	8.2 $\pm$ 4.2	1.0 $\pm$ 0.2	0.6 $\pm$ 0.2	10.7 $\pm$ 4.9
Zurich-North (industry)	0.7 $\pm$ 0.3	10.8 $\pm$ 3.9	0.2 $\pm$ 0.0	1.8	12.2 $\pm$ 4.4
Erstfeld (traffic)	1.5 $\pm$ 1.1	9.1 $\pm$ 6.3	0.4	nd	10.7 $\pm$ 7.3
Piotta (traffic)	1.0 $\pm$ 0.3	6.5 $\pm$ 3.5	1.4 $\pm$ 0.9	0.3 $\pm$ 0.2	8.7 $\pm$ 3.1
Schoenbuehl-Grauholz (traffic)	2.0 $\pm$ 0.7	17.2 $\pm$ 1.8	3.5	0.7	20.6 $\pm$ 3.6
Haerkingen (traffic)	1.4 $\pm$ 1.1	17.2 $\pm$ 12.0	1.9 $\pm$ 1.1	0.7 $\pm$ 0.7	20.9 $\pm$ 14.6
Haerkingen (away from traffic)	0.9 $\pm$ 0.3	9.3 $\pm$ 3.5	0.5 $\pm$ 0.4	Nd	10.8 $\pm$ 3.9
Thoerishaus-West (traffic)	1.8 $\pm$ 2.2	7.6 $\pm$ 4.2	3.3 $\pm$ 4.6	0.9 $\pm$ 0.3	13.6 $\pm$ 2.9
Taenikon (rural)	1.2 $\pm$ 0.8	19.9 $\pm$ 9.3	1.2 $\pm$ 0.9	0.4 $\pm$ 0.1	22.6 $\pm$ 9.0
Payerne (rural)	1.1 $\pm$ 0.3	12.2 $\pm$ 1.4	0.6	0.3 $\pm$ 0.3	13.9 $\pm$ 1.0
Hemmental (rural)	3.8 $\pm$ 2.9	3.1 $\pm$ 4.1	7.0 $\pm$ 1.0	0.2 $\pm$ 0.1	10.7 $\pm$ 3.8
Forst-Neuenegg (background)	0.5 $\pm$ 0.2	14.5	2.7 $\pm$ 2.3	0.4	8.2 $\pm$ 6.2
Hagen-Randen (background)	1.1 $\pm$ 0.3	9.5 $\pm$ 3.7	2.4 $\pm$ 2.9	0.4 $\pm$ 0.1	12.7 $\pm$ 3.5
Davos (alpine background)	1.1 $\pm$ 0.5	6.4 $\pm$ 1.3	0.3	0.3 $\pm$ 0.4	8.0 $\pm$ 1.3

\* nd: not detected

Reference: R. Herzig & C. Bieri: Persistente organische Luftschadstoffe (POPs) in der Schweiz. Umwelt-Materialien Nr. 146 Luft (2002). Publ.: Swiss Agency for the Environment, Forests and Landscape (now Federal Office for the Environment). German, English summary.  
[http://www.bafu.admin.ch/publikationen/index.html?action=show\\_publ&lang=D&id\\_thema=18&series=UM&nr\\_publ=146](http://www.bafu.admin.ch/publikationen/index.html?action=show_publ&lang=D&id_thema=18&series=UM&nr_publ=146)