

Declaration of non use of

Highly toxic, toxic, persistent and bioaccumulating, ozone-depleting and/or otherwise undesirable halogenated (chlorinated, brominated, fluorinated) substances

In the manufacture of **all** products supplied by Siegwirk, hazardous halogenated substances as listed below, or raw materials containing these hazardous halogenated substances are not used as intentionally added ingredients:

Volatile chlorinated hydrocarbons, such as:

- Dichloroethylenes (CAS: 75-35-4; 156-59-2; 156-60-5; 540-59-0)
- Trichloroethylene (CAS: 79-01-6)
- Perchloroethylene (CAS: 127-18-4)
- Chloroform (CAS: 67-66-3)
- Dichloromethane (CAS: 75-09-2)
- Dichloroethane (CAS: 107-06-2)
- Trichloroethane (CAS: 71-55-6)
- Tetrachloroethane (CAS: 79-34-5)
- Dichloropropane (CAS: 78-87-5)
- Carbon tetrachloride (CAS: 56-23-5)
- Chloroprene (CAS: 126-99-8)

Volatile fluorinated and fluorochlorinated hydrocarbons, and other ozone depleting substances:

- CFC (Defined in Appendix A group I of Montreal Protocol)
- Halon (Defined in Appendix A group II of Montreal Protocol) (CAS: 75-63-8)
- CFC other than above (Defined in Appendix B group I of Montreal Protocol)
- Carbon tetrachloride (Defined in Appendix B group II of Montreal Protocol) (CAS: 56-23-5)
- 1,1,1-trichloroethane (Defined in Appendix B group III of Montreal Protocol) (CAS: 71-55-6)
- HCFC (Defined in Appendix C group I of Montreal Protocol))
- HBFC (Defined in Appendix C group II of Montreal Protocol))
- Bromochloromethane (Defined in Appendix C group III of Montreal Protocol) (CAS: 74-97-5)
- Methylbromide (Defined in Appendix E of Montreal Protocol) (CAS: 74-83-9)
- Perfluorocarbons (PFC)
- Hydrogenated fluorocarbons (HFC)

Chlorinated paraffins (all chain lengths)

Chlorinated naphthalenes, Polychloronaphthalenes

Dichlorodiphenyltrichloroethane (DDT) (CAS: 50-29-3)
 Hexachlorocyclohexane (various CAS: 319-84-6; 319-85-7; 58-89-9; 319-86-8; 608-73-1, etc.)
 Perchloropentacyclodecane (Mirex) (CAS: 2385-85-5)
 Octachloro-4,7-methanohydroindane (Chlordane) (CAS: 12789-03-6)
 Octachlorocamphene (Toxaphene) (CAS: 1319-80-8)
 Aldrin (CAS: 309-00-2)
 Dieldrin (CAS: 60-57-1)
 Endrin (CAS: 72-20-8)
 Octachlorostyrene (CAS: 29082-74-4)
 Hexachlorobenzene (CAS: 118-74-1)
 Pentachlorobenzene (CAS: 608-93-5)
 Tetrachlorobenzenes (CAS: 95-94-3; 634-90-2; 634-66-2)
 Trichlorobenzenes (CAS: 120-82-1; 87-61-6; 108-70-3)
 Dichlorobenzenes (CAS: 95-50-1; 541-73-1; 106-46-7)
 Monochlorobenzene (CAS: 108-90-7)
 Chlorotoluenes (95-49-8; 108-41-8; 106-43-4)
 Chlorophenols (95-57-8; 108-43-0; 106-48-9)
 Dichlorophenols (120-83-2; 576-24-9; 583-78-8; 87-65-0; 95-77-2; 591-35-5)
 Trichlorophenols (15950-66-0; 933-78-8; 933-75-5; 95-95-4; 88-06-2; 609-19-8)
 Chloroanisoles (such as 2,4,6-Trichloroanisole, TCA; CAS 87-40-1)
 Bromoanisoles (such as 2,4,6-Tribromoanisole, TBA; CAS 607-99-8)
 Bis(chloromethyl)ether (CAS: 542-88-1)
 Pentachlorophenol and its salts and esters (PCP's)
 Polychlorinated Biphenyls (PCB's)
 Polychlorinated terphenyls (PCT's)
 Polychlorinated dibenzo-p-dioxins and Polychlorinated dibenzofuranes ("Dioxines")
 Polybrominated dibenzo-p-dioxines
 Vinyl chloride monomer (CAS: 75-01-4)

Polybrominated bi- or terphenyls

Brominated flame retardants:

- Polybromobiphenyls (PBB's)
- Polybrominated Diphenylethers (PBDE's)
- Tetrabromobisphenol A (TBBPA) (CAS: 79-94-7)
- Hexabromocyclododecane (CAS: 25637-99-4)
- Tris(2,3 dibromopropyl) phosphate (CAS: 126-72-7)

With regard to the above-mentioned hazardous halogenated substances in general, the information collected by Siegwirk assures customers that potential traces in Siegwirk products, if any, are below 0,1%.

Scientific evidence, including information from suppliers, indicates that, in principle, **few categories of organic pigments** can contain, in particular if the synthesis process is not appropriately controlled, minute but measurable traces of the following toxic halogenated substances:

- Hexachlorobenzene (HCB)
- Polychlorinated Biphenyls (PCB's)
- Polychlorinated dibenzo-p-dioxins and Polychlorinated dibenzofuranes ("Dioxines").

With regard to the concerned organic pigments, Siegwirk specifies maximum thresholds for PCB's, HCB's and Dioxines. These thresholds, applicable for Siegwirk worldwide, are derived, in particular with regard to printing inks for food packaging, from most-advanced regulations and benchmarks that are generally recognized as global best practice:

- for PCB's: CoE Resolution AP(89)1, max. 25 ppm,
- for HCB: "Siegwerk threshold" max. 25 ppm,

With these thresholds, worst case calculation demonstrates that, for food packaging, transfer of PCB's and HCB to food above current analytical detection limits is utmost improbable, thus the safety margin is state-of-the-art.

- for Dioxines: German Dioxines Ordinance ("Chemikalien-Verbotsverordnung", Anhang, Abschnitt 4"), max. 1 ppb for Group 1, max. 5 ppb for the sum Group 1 and 2, max. 100 ppb for the sum of Group 1, 2 and 3.

With these thresholds, worst case calculation demonstrates that, for food packaging, transfer of dioxines to food above current analytical detection limits is utmost improbable, thus the safety margin is state-of-the-art.

Siegwerk's data, gathered over years, demonstrate that the practical levels of PCB's, HCB and dioxines are, in the average, clearly below the thresholds specified.

Conclusion

Trace amounts of hazardous halogenated substances can never fully be excluded, however, with all measures taken by Siegwirk a maximum amount of safety for Siegwirk inks is assured.

Siegwerk can assure you that, in all Siegwirk products, the potential impurities of hazardous halogenated substances in general, as well as of PCB's, HCB and dioxines originating from the concerned few categories of organic pigments, are always clearly below levels of concern and/or specified thresholds.