

Declaration of non use of

Phthalates

and

on the measures for their control at trace level

In the manufacture of **all** products supplied by Siegwirk, **phthalate ester plasticizers** (“phthalates”), or raw materials containing phthalates are **not used** as intentionally added ingredients.

Consequently, amongst others, in particular the following phthalates are excluded:

Di-n-butylphthalate (DBP), CAS 84-74-2
 Di-isobutylphthalate (DIBP), CAS 84-69-5
 Bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP (also called „DOP“), CAS 117-81-7
 Benzylbutylphthalate (BBP), CAS 85-68-7
 Bis(2-Methoxyethyl) phthalate, CAS 117-82-8
 Dimethyl phthalate (DMP), CAS 131-11-3
 Diethyl phthalate (DEP), CAS 84-66-2
 Di-n-propyl phthalate (DPP), CAS 131-16-8
 Di-n-pentyl phthalate (DNPP), CAS 131-18-0
 1,2-benzenedicarboxylic acid, dipentylester, branched and linear (mixture of N-pentyl-isopentylphthalate, di-n-pentyl phthalate; diisopentylphthalate) , CAS 84777-06-0
 N-Pentyl-isopentylphthalate CAS 776297-69-9
 Di-n-hexyl phthalate (DNHP), CAS 84-75-3
 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich, CAS 71888-89-6
 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters, CAS 68515-42-4
 Dicyclohexyl phthalate (DCHP, DCP), CAS 84-61-7
 Di-n-octyl phthalate (DNOP), CAS 117-84-0
 Di-iso-pentyl phthalate (DIPP), CAS 605-50-5
 Di-iso-octyl phthalate (DIOP), CAS 27554-26-3
 Di-2-propyl heptyl phthalate (DPHP), CAS 53306-54-0
 Phthalic acid, diesters with saturated C8-C10 branched alcohols, more than 60% C9, CAS 68515-48-0
 Phthalic acid, diesters with primary, saturated C9-C11 alcohols more than 90 % C10, CAS 68515-49-1
 Di-iso-nonyl phthalate (DINP), CAS 28553-12-0
 Di-n-nonyl phthalate (DNP), CAS 84-76.-4
 Di-iso-decyl phthalate (DIDP), CAS 26761-40-0



[Phthalato(2-)]dioxotrilead (dibasic lead phthalate), CAS 69011-06-9

It is to be acknowledged that phthalates have been extensively used in many materials and articles in the past and that they may still be used in some areas in the chemical industry worldwide (e.g. chemicals, materials, equipment). Therefore, with regard to the control of a **possible occurrence at trace level of potential concern**, basically, the presence of traces of phthalates in the product - in minute but measurable amounts, and coming from raw material impurities, from the process or as adventitious contaminants - cannot be fully excluded.

The management of trace contents of phthalates, i.e. the extent of their minimization, has to take into consideration the relevant regulations which limit the exposure of the environment and the consumer. In fact, the most stringent limitations for phthalates in the field of printed matter are laid down for food contact materials (i.e. food packaging). These benchmark regulations, in particular Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with foodstuffs (Europe), Ordinance on Materials and Articles 817.023.21 (Switzerland) and Standard GB 9685-2008 “Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials” (China) provide that in particular the following relevant individual species must not exceed the indicated specific migration limits (SML’s) in foodstuffs:

Di-n-butylphthalate (DBP), CAS 84-74-2:	0.3 mg/kg
Bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; (DEHP), CAS 117-81-7:	1.5 mg/kg
Di-isononyl phthalate (DINP), CAS 28553-12-0:	9.0 mg/kg

Therefore considering even the lowest of all SML’s, the one for DBP of 0.3 mg/kg, based on a worst case calculation a **trace level of 500 ppm in the ink** as supplied can be deduced.

Consequently, Siegwerk has conducted and documented - under the supervision of its Global HSE + Sustainability department – exemplary analytical investigations, focusing on raw materials, manufacturing processes and equipment, and on inks as supplied. In particular, Siegwerk products marketed and/or produced in Asia (e.g. China) were covered by these investigations. These investigations are representative for Siegwerk’s products and sites worldwide. More than 15 individual phthalate esters out of those listed above, including DEHP, DBP and DINP which are restricted by SML’s, were identified and quantified by competent analytical institutes.

The results demonstrated that **all values of all single phthalate esters were in the range of few ppm, thus by several orders of magnitude below trace levels of concern** (i.e. 500 ppm).

Based on the fact mentioned before Siegwerk can assure you that, in all Siegwerk products, the potential impurities of phthalates are by far below even the lowest levels of concern (i.e. consumer exposure to traces in foodstuffs).