



## Nestlé Guidance Note on Packaging Inks – version 02-2014

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### Purpose

This document refers to the Nestlé Packaging Safety and Compliance Program and specifically addresses inks used on Nestlé packaging materials. This document equally applies to printing inks, lacquers, decorative coatings and varnishes.

As a rule, only ink ingredients that are listed in the Swiss Ordinance on Materials and Articles can be used. In addition, this document lists some components, which are listed in the Swiss Ordinance<sup>1</sup>, but are not to be used for Nestlé ink formulations.

This document must be shared with Nestlé vendors and upwards in the packaging value chain (ink makers, ink ingredient makers, coating and overprint varnish manufacturers).

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### How were components on the lists selected?

These components have been excluded from food packaging because of:

- uncertain or adverse toxicity
  - perceived risk by consumers, media, NGO, etc.
  - demonstrated migration potential
  - negative sensory impact on the packed food or in points of sale
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<sup>1</sup> The Swiss Ordinance includes two parts:

- Part A which lists the substances that have been toxicologically evaluated and for which a Specific Migration Limit (SML) has been set.
  - Part B which lists non-evaluated substances for which the default SML has been set at 0.01 mg/kg (10 ppb) of food or food simulant.
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**General**

## General exclusions

- Titanium Acetyl Acetonate (TAA) must not be used as an adhesion promoter
- *ortho*-Phthalate plasticizers must not be used
- Nitrocellulose resins must not be used in cases where the packaging is heated with food prior to consumption.
- Vegetable oils/fatty acid esters with strong odors must not be used (offset inks)

**Pigments**

Rhodamine-based (“Fanal”) pigments may contain residual rhodamine, which is a suspected carcinogenic substance. These pigments are generally less stable (visual aspect changes, migrations).

**Table 1: Exclusion list for Pigments**

| Pigments                         | Color index | CAS number              | Swiss Ordinance* List |
|----------------------------------|-------------|-------------------------|-----------------------|
| Pigment Red 81 and Red 81 series | 45160:1     | 12224-98-5              | B                     |
| Pigment Red 169                  | 45160:2     | 12224-98-5              | B                     |
| Pigment Green 1                  | 42040:1     | 1325-75-3               | B                     |
| Pigment Blue 1                   | 42595.2     | 1325-87-7               | B                     |
| Pigment Blue 62                  | 44084       | 57485-98-0              | B                     |
| Pigment Violet 1 and 1:x         | 45170:2/x   | 1326-03-0               | B                     |
| Pigment Violet 2                 | 45175:1     | 1326-04-1               | B                     |
| Pigment Violet 3                 | 42535:2     | 1325-82-2<br>67989-22-4 | B                     |
| Pigment Violet 27                | 42535:3     | 12237-62-6              | B                     |
| Pigment Violet 39                | 42555:2     | 64070-98-0              | B                     |

\* Swiss ordinance 817.023.21 active from May 1<sup>st</sup>, 2011

**NOTE**

Certain pigments may generate small amounts of Poly Chloro Biphenyls (PCBs) or are manufactured from 3,3'-dichlorobenzidine with different couplers. Consequently, the use of such pigments must be minimized.

**Photo-  
initiators**

Nestlé recommends the use of photo-initiators mentioned in List A of the Swiss Ordinance, i.e. those for which toxicological data exist. Additionally, there are photo-initiators which Nestlé does not want used for its packaging even though these are listed in the Swiss Ordinance. These prohibited photo-initiators are listed in Table 2.

**Table 2:** Exclusion list for Photo-Initiators

| PhotoInitiator Name  | CAS Number                                   | Swiss Ordinance  | Reason to exclude                                       |
|--|--|------------------|---|
| 2-Hydroxy 2-methyl propiophenone   | 7473-98-5                                    | B                | Sensory impact<br>Migration<br>/contamination potential |
| 2-(Dimethylamino)ethyl benzoate  | 2208-05-1                                    | B                | Migration<br>/contamination potential                   |
| Benzophenone type:<br>- Benzophenone<br>- 2-Methyl benzophenone<br>- 4-Methyl benzophenone<br>- 2,4,6-trimethylbenzo phenone | 119-61-9<br>131-58-8<br>134-84-9<br>954-16-5 | A<br>A<br>A<br>B | Sensory impact<br>Migration<br>/contamination potential |
| 1-Hydroxycyclohexyl phenylketone   | 947-19-3                                     | B                | Sensory impact<br>Migration<br>/contamination potential |
| 2,2-Dimethoxy 2-phenyl acetophenone  | 24650-42-8                                   | B                | Sensory impact<br>Migration<br>/contamination potential |
| 2-Methyl 4'-(methylthio) 2-morpholino-propiophenone  | 71868-10-5                                   | B                | Sensory impact  |
| 2- and 4-Isopropyl 9H-thioxanthen-9-one<br>(2-ITX and 4-ITX)   | 83846-86-0<br>5495-84-1                      | A<br>A           | Perceived issue   |
| 2,4-Diethyl 9H-thioxanthen-9-one   | 82799-44-8                                   | B                | Questionable toxicology                                 |
| Diphenyl (2,4,6-trimethyl benzoyl) phosphine oxide   | 75980-60-8                                   | A                | Questionable toxicology<br>Perceived issue              |

Note: This exclusion list is not applicable to UV printing on metal substrates (cans, closures) which undergo a thermal curing process.

## Acrylates

Nestlé recommends the use of acrylates mentioned in List A of the Swiss Ordinance, i.e. those for which toxicological data exist. Additionally, there are acrylates for UV and EB printing which Nestlé does not want used for its packaging even though these are listed in the Swiss Ordinance. These prohibited acrylates are listed in Table 3.

**Table 3: Exclusion list for acrylates (must not be intentionally used)**

| Chemical name                        | CAS number | Swiss Ordinance |
|--------------------------------------|------------|-----------------|
| Butanediol Diacrylate (BDDA)         | 1070-70-8  | B               |
| Diethylene glycol diacrylate (DEGDA) | 4074-88-8  | B               |
| Isodecyl acrylate (IDA)              | 1330-61-6  | B               |
| Octyl acrylate (ODA)                 | 2499-59-4  | A               |
| Phenoxy ethyl acrylate               | 48145-04-6 | B               |

There are some acrylates which must be minimized in the ink and varnish formulations so that their residual levels in foods (or food simulants) are below sensory and regulatory thresholds. These acrylates are listed in Table 4.

**Table 4: Minimize list for Acrylates**

| Chemical name   | CAS number | Swiss Ordinance |
|---|------------|-----------------|
| Trimethylol propane triacrylate (TMPTA)                     | 15625-89-5 | B               |
| Dipropylene glycol diacrylate (DPGDA)                       | 57472-68-1 | B               |
| 1, 6-Hexanediol diacrylate (HDDA)                           | 13048-33-4 | B               |
| 2-Ethyl hexyl acrylate (2EHA)                               | 103-11-7   | A               |
| Mixtures of pentaerythritol tri- and tetra-acrylates (PETA) | 3524-68-3  | B               |
| Tetraethylene glycol diacrylate (TEGDA)                     | 17831-71-9 | B               |

## Solvents

**Table 5: Exclusion list of Solvents (must not be intentionally used)**

| Chemical name                    | CAS number | Swiss Ordinance |
|----------------------------------|------------|-----------------|
| 2-Methoxyethanol (methyl glycol) | 109-86-4   | A               |
| 2-Ethoxyethanol (Ethyl glycol)   | 110-80-5   | A               |
| Monochlorobenzene                | 108-90-7   | A               |
| Toluene                          | 108-88-3   | A               |
| 1-methyl-2-pyrrolidone           | 872-50-4   | A               |

**Table 6: Minimize list for Solvents (must be strictly minimized)**

| Chemical name                 | CAS number | Swiss Ordinance |
|-------------------------------|------------|-----------------|
| Methanol                      | 67-56-1    | A               |
| Cyclohexane                   | 110-82-7   | A               |
| Methyl ethyl ketone (MEK)     | 78-93-3    | A               |
| Methyl isobutyl ketone (MiBK) | 108-10-1   | A               |
| Hexanol                       | 111-27-3   | A               |
| 2-Ethyl-1-hexanol             | 104-76-7   | A               |
| n-octanol                     | 111-87-5   | A               |
| Butyl glycol                  | 111-76-2   | A               |
| Ethyl diglycol                | 111-90-0   | A               |
| Butyl diglycol                | 112-34-5   | A               |
| Hexylene glycol               | 107-41-5   | A               |
| Butoxypropanol                | 5131-66-8  | A               |
| Butoxy propoxy propanol       | 29911-28-2 | A               |
| Ethanediol                    | 107-21-1   | A               |
| Diethylene glycol             | 111-46-6   | A               |
| Triethylene glycol            | 112-27-6   | A               |
| Butyl glycol acetate          | 112-07-2   | A               |
| 1-methoxy-2-propylacetate     | 108-65-6   | A               |
| Ethylbenzene                  | 100-41-4   | A               |
| 1-Pentanol                    | 71-41-0    | A               |

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