EuPIA Suitability List of Photoinitiators and Photosynergists for Food Contact Materials

Update January 2026

Summary: This list identifies, as assessed by EuPIA members active in UV printing inks, photoinitiators and photosynergists considered suitable for use in UV printing inks and varnishes on the non-food-contact surface of Food Contact Materials, based on toxicological profile and migration potential in line with EuPIA guidelines and policies. This list is non-exhaustive and voluntary. Companies remain responsible for ensuring compliance of their own products and applications under applicable legal frameworks.

Criteria 1:
Some photoinitiators and photosynergists have both Printed Food Contact Material performance potential and, by virtue of supportive toxicological data, an evaluated status with recognized migration thresholds (e.g. they are listed in Part A of Annex 10 to the Swiss Ordinance 817.023.21).

In order to make use of the official photoinitiator and photosynergist evaluations, EuPIA members may wish to consider photoinitiators with a composition and impurity profile equivalent to those for which the toxicity data were generated, submitted and evaluated by the relevant national body.

Criteria 2:
Other materials are not fully evaluated by evaluating authorities and therefore not officially included in existing legally binding positive lists. Depending on the application and packaging structure, compliance of the final package within the accepted migration limits can be achieved.

In all cases these materials should only be considered as suitable for use if Non-Intentionally Added Substances (NIAS) present can be proven to be migrating below the level deemed to be acceptable for that material, based on EuPIA Guidance for Risk Assessment of Non-Intentionally Added Substances (NIAS) and Non-Listed Substances (NLS) in printing inks for food contact materials[1].

It must be remembered that final measurement of migration compliance is the responsibility of the printer, in line with recognised converters' good manufacturing practices, and the end user.

According to Criteria 1 and 2 the following photoinitiators and photosynergists for use in coatings, inks and varnishes for the non-contact side of food packaging are as follows:

[1] EuPIA Guidance for Risk Assessment of Non-Intentionally Added Substances (NIAS) and Non-Evaluated or Non-Listed Substances (NLS) in printing inks for food contact materials, latest version 5th amendment 11-05-2021, Risk Assessment - Eupia

For all printed Food Contact Material types apart from UV inks and varnishes for metal packaging which undergo a thermal-curing step.

Description	CAS N°	SML [mg/kg]
Phenyl bis(2,4,6-trimethylbenzoyl) phosphine oxide	162881-26-7	3.3
1-(4-[(4-Benzoylphenyl)thio]phenyl)-2-methyl-2-[(4-methylphenyl)sulfonyl]-1-propan-1-one	272460-97-6	0.05
Di-ester of carboxymethoxy benzophenone and polytetramethyleneglycol 250	515136-48-8	0.05
(Dimethylamino)benzoate, esters with branched polyols	2067275-86-7	0.05
2-Hydroxy-1-(4-(4-(2-hydroxy-2-methylpropionyl)benzyl)phenyl-2-methyl-2-propanone	474510-57-1	0.05
Oligo-[2-Hydroxy-2-methyl-1-((4-(1-methylvinyl)phenyl) propanone]	163702-01-0	0.05
Poly(oxy-1,4-butanediyl), .alpha.-[2-[(9-oxo-9H-thioxanthenyl)oxy]acetyl]-.omega.-[[2-[(9-oxo-9H-thioxanthenyl)oxy]acetyl]oxy]-	0813452-37-8	0.05
Poly[oxy(methyl-12-ethandiyl)],alpha-[4-(di-methylamino)benzoyl-omega-butoxy	223463-45-4	0.05
1-[4-(2-Hydroxyethoxy)phenyl]-2-hydroxy-2-methyl-1-propanone	106797-53-9	0.05
A mixture of: Oxy-phenylacetic acid 2-[2-oxo-2-phenyl-acetoxy-ethoxy]-ethyl ester andOxy-phenylacetic acid 2-[2-hydroxy-ethoxy]-ethyl ester	211510-16-6 442536-99-4	0.05
2-Hydroxy-1-[4-(4-(2-hydroxy-2-methylpropionyl)phenoxy)-phenyl]-2-methylpropan-1-one	71868-15-0	0.05
tris{4-[(4-acetylphenyl) sulfanyl] phenyl}sulfonium hexafluorophosphate	953084-13-4	0.05
(Methylimino)diethane-2,1-diyl bis[4-(dimethylamino)-ben-zoate]	925246-00-0	0.05
1,1,1-Trimethylolpropane, ethoxylated, ester with 2-benzoyl-benzoic acid	-	0.05
A mixture of:1,3-di({a-2-(phenylcarbonyl)benzoylpoly[oxy(1-methylethylene)]}oxy)-2,2-bis ({a-2- phenylcarbonyl)-benzoylpoly[oxy(1-methylethylene)]}oxymethyl) propane and{a-2-(phenylcarbonyl)benzoylpoly(oxyethylene)-poly[oxy(1-methylethylene)]-poly(oxyethylene)} 2-(phenylcarbonyl)benzoate	1003567-82-5 1003557-16-1	>1000 Da
1,3-di({a-[1-chloro-9-oxo-9H-thioxanthen-4-yl)oxy]acetylpoly[oxy(1-methylethylene)]}oxy)-2,2-bis({a-[1-methylethylene)]}oxymethyl) propane	1003567-83-6	>1000 Da
A mixture of:- 1,3-di({-4-(dimethylamino)benzoylpoly[oxy(1-methylethylene)]}oxy)-2,2-bis ({ -4- (dimethylamino)-benzoylpoly[oxy(1-methylethylene)]}oxymethyl) propane and{a-4-(dimethylamino)benzoylpoly(oxyethylene)-poly[oxy(1-methylethylene)]-poly(oxyethylene)} 4-dimethyl-amino)benzoate	1003567-84-7 1003557-17-2	>1000 Da
Polymer based on piperazino compounds of aminoalkylphenone	886463-10-1	>1000 Da
Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propenyl)-ω-(4-benzo-ylphenoxy)	478549-43-8	Cross-linkable, functional initiator
Derivatized 2-benzoyl-benzoate, esters with linear polyols*	3074961-92-2	>1000 Da

** Available only for in-house use/not yet commercially available*

The above listed photoinitiators have Food Contact Material performance potential and are supported by appropriate toxicological data. The right-hand column indicates the justification for inclusion (specific migration limits, molecular weight above 1000 Daltons or cross-linkable reactive groups).

As stated under criteria 2, EuPIA members may, in addition, choose to use photoinitiators not listed in this table, provided they can demonstrate compliance with applicable legal requirements. By way of illustration, compliance pathways may include one or more of the following, as supported by an appropriate risk assessment:

I. Photoinitiators with an appropriate set of toxicological data showing the absence of CMR properties. Migration must be below 10ppb: this must be supported by repeated migration testing.

II. Photoinitiators with no potential for migration due to a molecular weight exceeding 1000 Daltons

III. Uses where a proven barrier to migration is present (e.g. printing on external glass or metal)

In the first two cases (I; and II.), individual member companies must be able to demonstrate the safety in use of the photoinitiator to customers and competent authorities, on the basis of their own comprehensive assessment of photoinitiator impurities and photolytes, in accordance with the principles laid down in the above mentioned EuPIA NIAS Guidance document.

Disclaimer.

This non-binding document is provided for general informational purposes only to support safety and compliance assessments concerning printing inks, coatings and varnishes for the non-food-contact side of food contact materials. It is not a specification, standard, certification, endorsement, or a recommendation to purchase, sell, use, or avoid any product or supplier. Companies must make independent decisions and ensure their own products meet legal requirements. EuPIA makes no warranties and assumes no liability for reliance on this document.

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