

EuPIA Suitability List of Photoinitiators and Photosynergists for Food Contact Materials – May 2019

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. 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 should preferably only use 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. Photoinitiators are required to be listed when they are intentionally added.

Other materials are not fully evaluated and accordingly are in the Part B list of the above Annex. 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.

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.

Photoinitiators and photosynergists for use in coatings, inks and varnishes for the non-contact side of food packaging are as follows:

For all printed Food Contact Material types

These photoinitiators have Food Contact Material performance potential and are supported by toxicological data, and therefore have defined migration thresholds or compliance performance potential through a molecular weight \geq 1000 Daltons, polymeric nature as stated by suppliers or through reactive groups of the photoinitiator which will allow it to become crosslinked into the cured ink/varnish film.

Description	CAS N°	SML [mg/kg]
Phenyl bis(2,4,6-trimethylbenzoyl) phosphine oxide	0162881-26-7	3.3
Benzoylbenzoate, esters with branched polyols		0.05
1-(4-[(4-Benzoylphenyl)thio]phenyl)-2-methyl-2-[(4-methylphenyl)sulfonyl]-1-propan-1-one	0272460-97-6	0.05
Di-ester of carboxymethoxy benzophenone and polytetramethyleneglycol 250	0515136-48-8	0.05
Di-ester of carboxymethoxy-benzophenone and polyethylene glycol 200	0515136-49-9	0.05
(Dimethylamino)benzoate, esters with branched polyols		0.05
2-Hydroxy-1-(4-(4-(2-hydroxy-2-methylpropionyl)benzyl)phenyl)-2-methyl-2-propanone	0474510-57-1	0.05
Oligo-[2-Hydroxy-2-methyl-1-((4-(1-methylvinyl)phenyl) propanone]	0163702-01-0	0.05
9-Oxo-9H-thioxanthene-carboxylate, esters with branched polyols		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
Diphenyl-(2,4,6-trimethylbenzoyl) phosphine oxide	75980-60-8	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

Description	CAS N°	SML [mg/kg]
2-(Dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(4-morpholinyl)phenyl]-1-butanone	0119344-86-4	0.05
1-[4-(2-Hydroxyethoxy)phenyl]-2-hydroxy-2-methyl-1-propanone	106797-53-9	0.05
Oxy-phenylacetic acid 2-[2-hydroxy-ethoxy]-ethyl ester	442536-99-4	0.05
Oxy-phenylacetic acid 2-[2-oxo-2-phenyl-acetoxy-ethoxy]-ethyl	211510-16-6	0.05
2-Hydroxy-1-[4-(4-(2-hydroxy-2-methylpropionyl)phenoxy)-phenyl]-2-methylpropan-1-one	71868-15-0	0.05
Oxy-phenylacetic acid 2-[2-hydroxy-ethoxy]-ethyl ester	442536-99-4	0.05
(Methylimino)diethane-2,1-diyl bis[4-(dimethylamino)-benzoate]	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}acetyl)poly[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-benzyloxy)phenylene	478549-43-8	Cross-linkable, functional initiator

Photoinitiators not included in this listing should only be used where transfer or migration of <10ppb or other stipulated limits can be achieved, or where a proven migration barrier, such as glass or metal, is in place.