

Date of issue: Aug 13, 2015

## Subject: Declaration of Compliance for Food Safety

This certificate refers to the following product(s):

**LUMIRROR\_XP35P/XP36P**

This above mentioned product(s) is(are) conforming to

- Regulation 1935/2004/EC and its amendments Directive 80/590/EEC and 89/109/EEC
- Regulation 10/2011/EC and its amendments Regulation 321/2011/EC, Regulation 1282/2011/EC, Regulation 1182/2012/EC, Regulation 174/2015/EC
- Regulation 2023/2006/EC and its amendments Regulation 282/2008/EC
- Regulation 1895/2005/EC
- European Directive 94/62/EC
- REACH Regulation 1907/2006/EC and SVHC list of substances
- FDA 21 CFR 170-190

- Directive 2005/84/EC amending Directive 76/769/EEC which puts **regulation on the use of Phthalate, This Directive states that such phthalates “Shall not be used as substances or constituents of preparations, at concentrations of greater than 0.1% by mass of the plasticized material.”**

Based on results obtained from specific migration test and declaration of raw material supplier, TAK confirms that Phthalates mentioned below are not added at any stage of production by us or in additive by suppliers. All the TAK “Lumirror” PET FILM mentioned above conform to commission Regulation EU 10/2011, selection of test conditions and food stimulants by 82/711, 85/572/EEC, and its amendments. Following are the results:

Test items	Unit	Test method	Results
Di-(2-ethylhexyl) phthalate (DEHP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Di-n-octyl phthalate (DNOP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Dibutyl phthalate (DBP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Butylbenzyl phthalate (BBP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)

Diisononyl phthalate (DINP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Diisodecyl phthalate (DIDP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Diisobutyl phthalate (DIBP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Dimethyl phthalate (DMP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Diethyl phthalate (DEP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
[Di(C7-C11 alkyl) phthalate] linear+branched (DHNUP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
[Di(C6-C8 alkyl) phthalate] branched (DIHP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Bis(2-methoxyethyl)-phthalate (BMP,BMEP,DMEP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Diisopentyl phthalate (DIPP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Di-n-hexyl phthalate (DNHP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)
Di-pentyl phthalate (DPP)	mg/kg	ASTM D3721-75, GC-MS	ND (Not detected)

● **Migration limits and testing**

The plastic materials are not fully inert and there are substances, which can transfer or migrate from the plastic packaging into the food and vice versa. This migration of substance is regulated by Directive 10/2011/EC and its amendment 1282/2011/EC with two different migration limits.

- Overall migration limit

Directive (EU) 10/2011, 2006/141/EC & 2006/125/EC limits the permissible overall migration limit. i.e. the area limiting value of 10mg/dm<sup>2</sup> under the test conditions set out Annex III in accordance with the rules set out in chapter 3, section 3.1 of Annex V.

no	test	stimulant used	stimulant used and test condition
1	overall migration test (Hydrophilic and lipophilic foods)	Stimulant-A (10% Ethanol)	10 days at 40°C 4hrs at 100°C
2		Stimulant-B (3% Acetic acid)	10 days at 40°C 4hrs at 100°C
3		Stimulant-C (20% Ethanol)	10 days at 40°C 4hrs at 100°C
4		Stimulant-D1 (50% Ethanol)	10 days at 40°C 4hrs at 100°C
5		Stimulant-D2 (Rectified olive oil)	10 days at 40°C 4hrs at 100°C

- Specific migration limits (SML)

The following monomers and additives used for the above mentioned products are submitted to specific migration limits or restrictions as defined in the Regulation 10/2011/EC. These substances are listed below with the applicable restrictions.

Moreover, the final plastics part is subject to a global migration limit of 10mg/dm<sup>2</sup> or 60mg/kg according to article 12 of Regulation 10/2011 EC.

- List of monomers/additives having a restriction (in current Directives as amended by date)

Name of monomer/additive	Group. No	Ref. No	CAS No	Restriction, SML*	Real SM test results
terephthalic acid	28	24910	100-21-0	7.5	ND (Not detected)
ethylene glycol	2	16990	107-21-1	30.0	ND (Not detected)
antimony trioxide	-	35760	1309-64-4	0.04	ND (Not detected)

\* Specific migration limit

- List of monomers/additives not having a restriction (in current Directives as amended by date)

Name of monomer/additive	CAS No
Polyethylene terephthalate	25038-59-9

● **REACH and Substance of Very High Concern (SVHC)**

All the TAK "Lumirror" PET FILM conform to the SVHC Screening test which is performed according to 163 substances in the candidate list of substance of Very High Concern for Authorization published by European Chemicals Agency (ECHA) on and before Mar 2<sup>nd</sup>, 2015 regarding Regulation (EC) No. 1907/2006 concerning the REACH.

● **FDA conformance**

All the TAK "Lumirror" PET FILM comply with FDA regulations 21 CFR 177.1630 (a) (films made of Polyethylene terephthalate polymers) and specifications therein e), (f) & (g) with regard to the results for net chloroform soluble fractions obtained from these films under the below mentioned conditions:

Extract solvent	TEST conditions	Result (mg/in2)	Permissible limit (mg/in2)
Distilled Water	212°F for 2 hours	<0.5	0.5
Distilled Water	250°F for 2 hours	<0.5	0.5
50% Ethanol	120°F for 24 hours	<0.5	0.5
N-Heptane	150°F for 2 hours	<0.5	0.5

● **ROHS and Halogen free conformance**

All the TAK “Lumirror” PET FILM complies with EU’s Restriction of Hazardous Substances Directive and Halogen free.

- Heavy Metals

Test items	Unit	Test method	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2014	ND
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2014	ND
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2014	ND
Hexavalent Chromium (Cr VI)	mg/kg	With reference to IEC 62321-:2008	ND

- Flame Retardants-PBBs/PBDEs (Phenyl, Phenylether)

- Halogen free

Test items	Unit	Test method	Results
Bromine(Br)	mg/kg	With reference to EN 14582, IC	ND
Chlorine(Cl)	mg/kg	With reference to EN 14582, IC	ND
Fluorine(F)	mg/kg	With reference to EN 14582, IC	ND
Iodine(I)	mg/kg	With reference to EN 14582, IC	ND

● **Non-inclusion of other hazardous substances**

TAK “Lumirror” PET FILM does not contain the following substances.

- VCM and VDCM (Vinyl Chloride Monomer, Vinylidene Chloride Monomer).
- Benzidine derivatives.
- Substances identified as Carcinogenic to humans.
- Organic tin compound ( Tributyl tin, Triphenyl tin )
- Alkylphenols and their derivatives

- Artificial musks and Triclosan
- Perfluoro-octanyl sulphonate and Perfluoro-octanic acid ( PFOS and PFOA )
- Bisphenol A
- Telomer based products
- Asbestos and Azo compound
- Arsenic compound
- Barium (Ba) and Selenium(Se)
- Cellulose fiber
- Natural rubber or latex
- Tris-Nonylphenol Phosphite(TNPP)

You will be informed of any changes in the composition of our above-mentioned products which are relevant to the material restriction regulation.

Sincerely yours,

Y.H. Kim

Q.C. Engineer



Film Tech. Team, Film Tech. 2<sup>nd</sup> Part

TORAY Advance Materials Korea.INC.