

## TEST REPORT

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**REPORT NUMBER :** TURT210139509  
**APPLICANT NAME :** Mutlu Plastik İnş.Taah.Turz.San.ve Tic.Ltd.Şti.  
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**Attention :** Serap Aydoğan ( serap.aydogan@mutlumasterbatch.com.tr )  
**SAMPLE DESCRIPTION :** See attachment  
**DATE IN :** 20 October ,2021 ( 13:59:00)  
**DATE OUT :** 25 October ,2021  
**REQUEST.** Rohs Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU



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PART	DESCRIPTION	CONCLUSION
Sample 1	Granule (801-803-804-810-820 is a mix of coded products)	Pass
Sample 2	Granule (840-841-842-843-870-875 is a mix of coded products)	Pass
Sample 3	Granule (801.2-805-806-803.2-825-826 is a mix of coded products)	Pass
Sample 4	Granule (807-808 is a mix of coded products)	Pass
Sample 5	Granule (098-099-100-101-102-103-104-105 is a mix of coded products)	Pass

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**(A) TEST RESULT SUMMARY ACCORDING TO IEC 62321**

**Electrotechnical Products-Determination of Levels of Six Regulated Substances**

TESTING ITEM	RESULT		
	Sample 1	Sample 2	Sample 3
Cadmium (Cd) Content	ND	ND	ND
Chromium VI (Cr+6) Content (ppm) (for non- metal)	ND	ND	ND
Chromium VI (Cr+6) Content (µg/cm <sup>2</sup> ) (for metal)	NA	NA	NA
Lead (Pb) Content	ND	ND	ND
Mercury (Hg) Content	ND	ND	ND
Flame Retardants			
<b>Polybrominated Biphenyls (PBB)</b>	ND	ND	ND
Monobromobiphenyl (MonoBB)	ND	ND	ND
Dibromobiphenyl (DiBB)	ND	ND	ND
Tribromobiphenyl (TriBB)	ND	ND	ND
Tetrabromobiphenyl (TetraBB)	ND	ND	ND
Pentabromobiphenyl (PentaBB)	ND	ND	ND
Hexabromobiphenyl (HexaBB)	ND	ND	ND
Heptabromobiphenyl (HeptaBB)	ND	ND	ND
Octabromobiphenyl (OctaBB)	ND	ND	ND
Nonabromobiphenyl (NonaBB)	ND	ND	ND
Decabromobiphenyl (DecaBB)	ND	ND	ND
<b>Polybrominated Diphenyl Ethers (PBDE)</b>	ND	ND	ND
Monobromodiphenyl Ether (MonoBDE)	ND	ND	ND
Dibromodiphenyl Ether (DiBDE)	ND	ND	ND
Tribromodiphenyl Ether (TriBDE)	ND	ND	ND
Tetrabromodiphenyl Ether (TetraBDE)	ND	ND	ND
Pentabromodiphenyl Ether (PentaBDE)	ND	ND	ND
Hexabromodiphenyl Ether (HexaBDE)	ND	ND	ND
Heptabromodiphenyl Ether (HeptaBDE)	ND	ND	ND
Octabromodiphenyl Ether (OctaBDE)	ND	ND	ND
Nonabromodiphenyl Ether (NonaBDE)	ND	ND	ND
Decabromodiphenyl Ether (DecaBDE)	ND	ND	ND

Remarks : ppm=Parts per million based on dry weight of sample

µg/cm<sup>2</sup>=Microgram per square centimetre

mg/kg with 50 cm<sup>2</sup>=Milligram per kilogram with 50 square centimetre

ND =Not detected NA =Not applicable NR =Not requested

Estimated Total Uncertainty = ((Heavy Metal: ±7% , PBB/PBDE: ±6%, Phthalates: ±6%))

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TESTING ITEM	RESULT		
	Sample 1	Sample 2	Sample 3
<b>Phthalates</b>			
Dibutyl phthalate (DBP) (84-74-2)	ND	ND	ND
Diethyl Hexyl Phthalate (DEHP) (117-81-7)	ND	ND	ND
Benzyl butyl phthalate (BBP) (85-68-7)	ND	ND	ND
Diisobutyl Phthalate (DIBP) (84-69-5)	ND	ND	ND

TESTING ITEM	RESULT	
	Sample 4	Sample 5
Cadmium (Cd) Content	ND	ND
Chromium VI (Cr+6) Content (ppm) (for non- metal)	ND	ND
Chromium VI (Cr+6) Content ( $\mu\text{g}/\text{cm}^2$ ) (for metal)	NA	NA
Lead (Pb) Content	92 ppm	ND
Mercury (Hg) Content	ND	ND
Flame Retardants		
<b>Polybrominated Biphenyls (PBB)</b>	ND	ND
Monobromobiphenyl (MonoBB)	ND	ND
Dibromobiphenyl (DiBB)	ND	ND
Tribromobiphenyl (TriBB)	ND	ND
Tetrabromobiphenyl (TetraBB)	ND	ND
Pentabromobiphenyl (PentaBB)	ND	ND
Hexabromobiphenyl (HexaBB)	ND	ND
Heptabromobiphenyl (HeptaBB)	ND	ND
Octabromobiphenyl (OctaBB)	ND	ND
Nonabromobiphenyl (NonaBB)	ND	ND
Decabromobiphenyl (DecaBB)	ND	ND
<b>Polybrominated Diphenyl Ethers (PBDE)</b>	ND	ND
Monobromodiphenyl Ether (MonoBDE)	ND	ND

Remarks : ppm=Parts per million based on dry weight of sample

$\mu\text{g}/\text{cm}^2$ =Microgram per square centimetre

mg/kg with 50  $\text{cm}^2$ =Milligram per kilogram with 50 square centimetre

ND =Not detected NA =Not applicable NR =Not requested

Estimated Total Uncertainty = ((Heavy Metal:  $\pm 7\%$  , PBB/PBDE:  $\pm 6\%$ , Phthalates:  $\pm 6\%$ ))

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TESTING ITEM	RESULT	
	Sample 4	Sample 5
Dibromodiphenyl Ether (DiBDE)	ND	ND
Tribromodiphenyl Ether (TriBDE)	ND	ND
Tetrabromodiphenyl Ether (TetraBDE)	ND	ND
Pentabromodiphenyl Ether (PentaBDE)	ND	ND
Hexabromodiphenyl Ether (HexaBDE)	ND	ND
Heptabromodiphenyl Ether (HeptaBDE)	ND	ND
Octabromodiphenyl Ether (OctaBDE)	ND	ND
Nonabromodiphenyl Ether (NonaBDE)	ND	ND
Decabromodiphenyl Ether (DecaBDE)	ND	ND
<b>Phthalates</b>		
Dibutyl phthalate (DBP) (84-74-2)	ND	ND
Diethyl Hexyl Phthalate (DEHP) (117-81-7)	ND	ND
Benzyl butyl phthalate (BBP) (85-68-7)	ND	ND
Diisobutyl Phthalate (DIBP) (84-69-5)	ND	ND

Remarks : ppm=Parts per million based on dry weight of sample

µg/cm<sup>2</sup>=Microgram per square centimetre

mg/kg with 50 cm<sup>2</sup>=Milligram per kilogram with 50 square centimetre

ND =Not detected NA =Not applicable NR =Not requested

Estimated Total Uncertainty = ((Heavy Metal: ±7% , PBB/PBDE: ±6%, Phthalates: ±6%))

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**(B) REQUIREMENT:**

SUBSTANCE	LIMITS	
Cadmium (Cd) Content	0.01 % (100 ppm)	
Chromium VI (Cr+6) Content (ppm) (for non metal)	0.1 % (1000 ppm)	
Chromium VI (Cr+6) Content ( $\mu\text{g}/\text{cm}^2$ ) (for metal)	<u>Colorimetric result</u>	<u>Qualitative Result</u>
	< 0.10 $\mu\text{g}/\text{cm}^2$	Negative
	$\geq 0.10 \mu\text{g}/\text{cm}^2$ and $\leq 0.13 \mu\text{g}/\text{cm}^2$	Inconclusive
	> 0.13 $\mu\text{g}/\text{cm}^2$	Positive
Lead (Pb) Content	0.1 % (1000 ppm)	
Mercury (Hg) Content	0.1 % (1000 ppm)	
Flame Retardants	0.1 % (1000 ppm)	
Dibutyl Phthalate (DBP)	0.1 % (1000 ppm)	
Diethyl Hexyl Phthalate (DEHP)	0.1 % (1000 ppm)	
Benzyl Butyl Phthalate (BBP)	0.1 % (1000 ppm)	
Diisobutyl Phthalate (DIBP)	0.1 % (1000 ppm)	

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**(C) TEST METHOD :**

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd)Content	With reference to IEC 62321-5:2013,by microwave or acid digestion and determined by ICP-OES	Plastic : 2.5 ppm, Metal : 5 ppm, Ceramic : 1.25 ppm
Lead (Pb)Content	With reference to IEC 62321-5:2013,by microwave or acid digestion and determined by ICP-OES	Plastic : 5 ppm, Metal : 10 ppm, Ceramic : 2.5 ppm
Mercury (Hg)Content	With reference to IEC 62321-4:2017,by microwave or acid digestion and determined by ICP-OES	Plastic : 5 ppm, Metal : 10 ppm, Ceramic : 2.5 ppm
Chromium VI (Cr6+) (For non-metal)	With reference to IEC 62321-7-2:2017,by alkaline digestion and determined by UV-VIS spectrophotometer	Plastic : 25 ppm (PVC based) /8.33 ppm (other), Ceramic : 8.33 ppm
Chromium VI (Cr6+) (For metal)	With reference to IEC 62321-7-1:2015 ,by boiling water extraction and determined by UV-VIS spectrophotometer	0.1 mg/kg with 50 cm <sup>2</sup> (IN TESTING SOLUTION)
PBBs/PBDEs	With reference to IEC 62321-6:2015,by solvent extraction and determined by GC/MS and HPLC	5 ppm
Phthalates	With reference to IEC 62321-8 (111/321/CD), by solvent extraction and determined by GC-MS.	50 ppm

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Sample 1



Sample 2



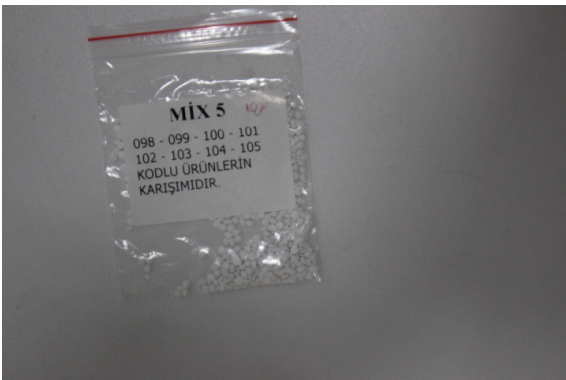
Sample 3



Sample 4



Sample 5



#### END OF TEST REPORT ###