

**Test Report**

Applicant: Taiwan Additive Chemical Co., Ltd.  
1F., No.146, Minzu Rd., Linkou Dist.,  
New Taipei City 24462, Taiwan

Number : TWNC01144752-S1  
Date Issued : Feb 06, 2023  
THIS IS TO SUPERSEDE REPORT NO.  
TWNC01144752 DATED Jan 17, 2023

Sample Description:

One (1) bottle of submitted sample said to be :

Item Name : Silicone Printing Inks, **Used for**  
Silicone (85-Series, 89- Series) Silicone Pigments (LT-8D-Series)  
**Silicone Additives (AD-Catalyst-Series , AD-Retardant-Series)**

Brand : -

Chemical Style No. : **Silicone Printing Inks, Used for**  
Silicone (85-Series, 89- Series) Silicone Pigments (LT-8D-Series)  
**Silicone Additives (AD-Catalyst-Series , AD-Retardant-Series)**

Chemical Status : Liquid

Batch No. : -

Manufacturing Date (MFG) : -

Expiry Date (EXP) : -

Color : Multiple Color

Quantity : 1 Bottle

Test Type :  1.1 Auxiliaries and finishing agents for fibres & yarns  
 1.2 Pretreatment agents  
 1.3 Textile auxiliaries for dyeing and printing  
 1.4 Finishing assistants  
 1.5 Technical auxiliaries for multipurpose use in the textile industry  
 1.6 Other auxiliaries  
 1.7 Dyes and pigments  
 1.8 Anciliaries  
 1.9 Base Chemicals  
 1.10 Screen Printing Anciliaries

Use code (MRSL Conformance Guidance, Annex A) : 1.3.25.4

Authorized By:  
On behalf of Intertek Testing Services  
Taiwan Limited

  
Anna Jing  
Assistant General Manager



Signed by:

  
Thomas Chou  
Manager



**Test Report**

Number : TWNC01144752-S1

Manufacturer : Taiwan Additive Chemical Co., Ltd.  
Country of Origin : Taiwan  
Goods Exported to : -  
Date Sample Received : Jan 04, 2023  
Date Test Started : Jan 04, 2023

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Test Conducted:  
As requested by the applicant, for details please refer to attached pages.

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On behalf of Intertek Testing Services  
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Anna Jing  
Assistant General Manager



Signed by:

  
Thomas Chou  
Manager



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**Test Report**

Number : TWNC01144752-S1

Conclusion:

<u>Tested Sample</u>	<u>Standard</u>	<u>Result</u>
Submitted Sample	As Per ZDHC Manufacturing Restricted Substances List (MRSL) v2.0	
	– Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs), including all isomers	Pass
	– Dyes – Azo (Forming Restricted Amines)	Pass
	– Organotin Compounds	Pass
	– Polycyclic Aromatic Hydrocarbons (PAHs)	Pass
	– Phthalates – including all other esters of ortho-phthalic acid	Pass
	– Total Heavy Metals	Need (See Remark^)

Remark :

^ = Per applicant's provide information (molecular structure contain **Cu** element), below remark from ETAD is listed for reference: these limit do not apply to products containing a listed metal as an inherent part of the molecular structure, e.g. metal-complex dyes or the double salts of certain cationic dyes. In this case the dyes user will use the information on the metal content to organize proper disposal.

**The formulator has the responsibility to communicate with their downstream customers (wet processors) regarding the inherent metal element content in this product, when using any colorant with listed metals as an inherent compositional part, wet processors need to be aware of to make sure the dyed product meet the Extractable Heavy Metal requirement set for the end product, and the effluents need to meet the metal limits in the ZDHC wastewater guidelines.**

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On behalf of Intertek Testing Services  
Taiwan Limited

  
Anna Jing  
Assistant General Manager



Signed by:

  
Thomas Chou  
Manager



Test Conducted :

1. Alkylphenol (AP) and Alkylphenol Ethoxylates (APEO), including all isomers

With reference to in house method (modified ISO 18254-1) and determined by by Liquid Chromatography-Tandem Mass Spectrometer (LC-MS-MS) analysis.

<u>Compound</u>	<u>Result (ppm)</u> <u>Submitted sample</u>	<u>Limit (ppm)</u>
Nonylphenol (NP), mixed isomers	ND	250
Octylphenol (OP), mixed isomers	ND	250
Octylphenol ethoxylates (OPEO)	ND	500
Nonylphenol ethoxylates (NPEO)	ND	500

Remarks : ppm = Parts per million = mg/kg  
ND = Not detected  
Reporting limit = 100 ppm



Test Conducted :

2. Dyes – Azo (Forming Restricted Amines)

With reference to in house method (modified ISO 14362-1 and ISO 14362-3) by Gas Chromatography-Mass Spectrometer (GC-MS) analysis.

	<u>Forbidden</u>	<u>CAS No.</u>	<u>Result</u> <u>Submitted sample</u>
1.	4,4'-Methylene-bis-(2-chloroaniline)	101-14-4	N
2.	4,4'-Diaminodiphenylmethane	101-77-9	N
3.	4,4'-Oxydianiline	101-80-4	N
4.	4-Chloroaniline	106-47-8	N
5.	3,3'-Dimethoxybenzidine	119-90-4	N
6.	3,3'-Dimethylbenzidine	119-93-7	N
7.	6-Methoxy- <i>m</i> -toluidine	120-71-8	N
8.	2,4,5-Trimethylaniline	137-17-7	N
9.	4,4'-Thiodianiline	139-65-1	N
10.	4-Aminoazobenzene	60-09-3	N
11.	4-Methoxy- <i>m</i> -phenylenediamine	615-05-4	N
12.	4,4'-Methylenedi- <i>o</i> -toluidine	838-88-0	N
13.	2,6-Xylidine	87-62-7	N
14.	<i>o</i> -Anisidine	90-04-0	N
15.	2-Naphthylamine	91-59-8	N
16.	3,3'-Dichlorobenzidine	91-94-1	N
17.	4-Aminodiphenyl	92-67-1	N
18.	Benzidine	92-87-5	N
19.	<i>o</i> -Toluidine	95-53-4	N
20.	2,4-Xylidine	95-68-1	N
21.	4-Chloro- <i>o</i> -toluidine	95-69-2	N
22.	4-Methyl- <i>m</i> -phenylenediamine	95-80-7	N
23.	<i>o</i> -Aminoazotoluene	97-56-3	N
24.	5-Nitro- <i>o</i> -toluidine	99-55-8	N
25.	2-Naphthylammoniumacetate^	553-00-4	N
26.	4-Chloro- <i>o</i> -toluidinium chloride^	3165-93-3	N
27.	4-Methoxy- <i>m</i> -phrnylene diammonium sulphate^	39156-41-7	N
28.	2,4,5-Trimethylaniline hydrochloride^	21436-97-5	N

Limit : 150 ppm

Remarks : N = Not detected  
Reporting limit = 150 ppm  
ppm = Parts per million = mg/kg  
^ = The values were calculated based on concentration of 4-Chloro-*o*-toluidine, 2-Naphthylamine, 2,4-Diaminoanisole and 2,4,5-Trimethylaniline.



Test Conducted :

3. Organotin Compounds

With reference to in house method (modified ISO/TS 16179) and Gas Chromatography-Mass Spectrometer (GC-MS) analysis.

<u>Compound</u>	<u>Result (ppm)</u> <u>Submitted sample</u>	<u>Limit (ppm)</u>
Dibutyltin (DBT)	ND	20
Monomethyltin	ND	5
Dimethyltin	ND	5
Trimethyltin	ND	5
Monooctyltin	ND	5
Diocyltin	ND	5
Triocyltin	ND	5
Monophenyltin	ND	5
Diphenyltin	ND	5
Triphenyltin	ND	5
Monobutyltin	ND	5
Tributyltin	ND	5
Dipropyltin compounds (DPT)	ND	5
Tetraethyltin compounds (TeET)	ND	1
Tripropyltin compounds (TPT)	ND	1
Tetrabutyltin compounds (TeBT)	ND	1
Tetraoctyltin compounds (TeOT)	ND	1
Tricyclohexyltin (TCyHT)	ND	1

Remarks : ppm = Parts per million = mg/kg

ND = Not detected

Reporting limit = 1 ppm for TeET/TPT/TeBT/TeOT/TCyHT  
5 ppm for other organotin compounds



Test Conducted :

4. Polycyclic Aromatic Hydrocarbons (PAHs)

With reference to in house method (modified AfPS GS 2019:01 PAK issued by the German committee on product safety (AfPS) and Gas Chromatography-Mass Spectrometer (GC-MS) analysis.

<u>Compound</u>	<u>Result (ppm)</u>	<u>Limit (ppm)</u>		
	<u>Submitted sample</u>	<u>(For Textile)</u>	<u>(For Leather)</u>	<u>(For Polymer)</u>
Benzo[a]pyrene (BaP)	ND	20	20	20
Pyrene	ND	--	--	--
Benzo[ghi]perylene	ND	--	--	--
Benzo[j]fluoranthene	ND	--	--	--
Anthracene	ND	--	--	--
Indeno[1,2,3-cd]pyrene	ND	--	--	--
Benzo[e]pyrene	ND	--	--	--
Benzo[b]fluoranthene	ND	--	--	--
Benzo[k]fluoranthene	ND	--	--	--
Fluoranthene	ND	--	--	--
Acenaphthylene	ND	--	--	--
Dibenz[a,h]anthracene	ND	--	--	--
Chrysene	ND	--	--	--
Phenanthrene	ND	--	--	--
Acenaphthene	ND	--	--	--
Fluorene	ND	--	--	--
Naphthalene (NaP)	ND	--	300	--
Benzo[a]anthracene	ND	--	--	--
Sum of PAHs (excluding BaP)	ND	200	--	--
Sum of PAHs (excluding BaP and NaP)	ND	--	200	--

Remarks : ppm = Parts per million = mg/kg  
 ND = Not detected  
 Reporting limit = 20 ppm for Benzo[a]pyrene  
 200 mg/kg for sum of other PAHs



Test Conducted :

5. Phthalates – including all other esters of ortho-phthalic acid

With reference to in house method (modified CPSC-CH-C1001-09.3) and Gas Chromatography-Mass Spectrometer (GC-MS) analysis.

<u>Compound</u>	<u>Result (ppm)</u> <u>Submitted sample</u>	<u>Limit (ppm)</u>
Di-n-octyl phthalate (DNOP)	ND	--
Bis(2-methoxyethyl) phthalate (DMEP)	ND	--
Di-iso-decyl phthalate (DIDP)	ND	--
Di(ethylhexyl) phthalate (DEHP)	ND	--
Di-iso-nonyl phthalate (DINP)	ND	--
Di-n-hexyl phthalate (DnHP)	ND	--
Butyl benzyl phthalate (BBP)	ND	--
Dibutyl phthalate (DBP)	ND	--
Dinonyl phthalate (DNP)	ND	--
Diethyl phthalate (DEP)	ND	--
Di-n-propyl phthalate (DPRP)	ND	--
Dicyclohexyl phthalate (DCHP)	ND	--
Di-iso-butyl phthalate (DIBP)	ND	--
Di-iso-octyl phthalate (DIOP)	ND	--
1,2-benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	ND	--
1,2-benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	ND	--
Di-iso-pentyl phthalates	ND	--
Di-n-pentyl phthalates	ND	--
Sum of above	ND	250

Remarks: ppm =Parts per million = mg/kg  
 ND =Not detected  
 Reporting limit = 250 ppm for sum of all phthalates



Test Conducted :

6. Total Heavy Metals

With reference to in house method (modified EN 16711-1) by Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)(except Cr(VI)) and With reference to in house method (modified ISO 17075-1 or ISO 17075-2) by UV-Vis Spectrophotometer (UV-VIS) or High Performance Liquid Chromatography-Photodiode Array Detector (HPLC-DAD) with post column reaction (Cr(VI)).

	<u>Result (ppm)</u>	<u>Limit (ppm)</u>
	<u>Submitted sample</u>	
Arsenic (As)	ND	50
Cadmium (Cd)	ND	20 (Others) / 50 (Pigments)
Mercury (Hg)	ND	4 (Others) / 25 (Pigments)
Lead (Pb)	ND	100
Chromium VI (Cr (VI))	ND	10
Antimony (Sb)	ND	50 (Dyes) / 250 (Pigments)
Chromium (Cr)	ND	100 (Dyes and Pigments)
Barium (Ba)	ND	100 (Dyes and Pigments)
Selenium (Se)	ND	20 (Dyes) / 100 (Pigments)
Tin (Sn)	ND	250 (Dyes)
Nickel (Ni)	ND	250 (Dyes)
Copper (Cu)	>250 <sup>^</sup>	250 (Dyes)
Cobalt (Co)	ND	500 (Dyes)
Silver (Ag)	ND	100 (Dyes)



Test Conducted :

Total Heavy Metals (Cont'd)

Remarks: ppm = Parts per million = mg/kg

ND = Not detected

Reporting limit = As : 50 ppm  
Cd : 20 ppm  
Hg : 4 ppm  
Pb : 100 ppm  
Cr (VI) : 10 ppm  
Sb : 50 ppm  
Cr : 100 ppm  
Ba : 100 ppm  
Se : 20 ppm  
Sn : 250 ppm  
Ni : 250 ppm  
Cu : 250 ppm  
Co : 500 ppm  
Ag : 100 ppm

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End of Report

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