

Report No.: 244429828c 001

Page 1 of 11

Client: Zhejiang Luoxing Chemical Co., Ltd.

Contact Information: No. 1621, Bujiao Road, Daqiao Town, Nanhu District, Jiaxing City, Zhejiang Province.
18005730820@189.cn

Identification/ Model No(s): Polyurethane hot melt adhesive FU-6563S

Sample obtaining method: Sending by customer

Sample Receiving date: 2022-06-13

Condition at delivery: Test item complete and undamaged

Testing Period: 2022-06-17 to 2022-06-22

Place of testing: Chemical laboratory Shanghai

Test specification: Technical information selection and determination of chemical compounds (ZDHC MRS� version 2.0)

Other Information:
Country of Origin: CHINA.

For and on behalf of
TÜV Rheinland (Shanghai) Co., Ltd.



2022-06-24

Nicky Chen / Assistant Manager

Date

Name/Position

Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed. This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products. "Decision Rule" document announced in our website (<https://www.tuv.com/landingpage/en/qm-gcn/>) describes the statement of conformity and its rule of enforcement for test results are applicable throughout this test report.

Test Report No.: 244429828c 001

Page 2 of 11

Test specification:**Test result:****ZDHC Manufacturing Restricted Substances List - Version 2.0**

1. Alkylphenols (APs) and Alkylphenol Ethoxylates (APEOs)	Pass
2. Glycols/ Glycol Ethers	Pass
3. Halogenated Solvents	Pass
4. Organotin Compounds	Pass
5. Polycyclic Aromatic Hydrocarbons (PAHs)	Pass
6. Phthalates – including all other esters of ortho-phthalic acid	Pass
7. Total Heavy Metal	Pass
8. Volatile Organic Compounds (VOC)	Pass

Material list

Material No.	Material	Location
M001	Solid	Polyurethane hot melt adhesive FU-6563S

Test Report No.: 244429828c 001

Page 3 of 11

Test results**Alkylphenols (APs) and Alkylphenol Ethoxylates (APEOs):**

Test Method:

Alkylphenols (APs): Solvent extraction, GCMS

Alkylphenol Ethoxylates (APEOs): ISO/DIS 18254, LCMS

Test Result:

Test Parameter	CAS No.	Unit	RL	Test No.	1
				Material No.	M001
				Formulation Limit	Test Result
Nonylphenol (NP), mixed isomers	104-40-5 11066-49-2 25154-52-3 84852-15-3	ppm	100	250	<RL
Octylphenol (OP), mixed isomers	140-66-9 1806-26-4 27193-28-8	ppm	100	250	<RL
Nonylphenoethoxylates (NPEO)	9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0	ppm	100	500	<RL
Octylphenoethoxylates (OPEO)	9002-93-1 9036-19-5 68987-90-6	ppm	100	500	<RL
Conclusion		--	--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 4 of 11

Glycols/ Glycol Ethers

Test Method: Organic solvent extraction, GCMS

Test Result:

Test Parameter	CAS No.	Unit	RL	Test No.	1
				Material No.	M001
				Formulation Limit	Test Result
Ethylene glycol dimethylether	110-71-4	ppm	10	50	<RL
2-methoxyethylacetate	110-49-6	ppm	10	50	<RL
2-ethoxyethanol	110-80-5	ppm	10	50	<RL
2-methoxyethanol	109-86-4	ppm	10	50	<RL
Bis(2-methoxyethyl)-ether	111-96-6	ppm	10	50	<RL
2-ethoxyethyl acetate	111-15-9	ppm	10	50	<RL
2-methoxypropylacetate	70657-70-4	ppm	10	Textile: 50 Leather: 1000 Other: NA	<RL
Triethylene glycol dimethyl ether	112-49-2	ppm	10	50	<RL
Conclusion			--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 5 of 11

Halogenated Solvents

Test Method: Organic solvent extraction, GCMS

Test Result:

Test Parameter	CAS No.	Unit	RL	Test No.	1
				Material No.	M001
				Formulation Limit	Test Result
Methylene chloride	75-09-2	ppm	2	5	<RL
Trichloroethylene	79-01-6	ppm	2	40	<RL
Tetrachloroethylene	127-18-4	ppm	2	5	<RL
Benzylchloride	100-44-7	ppm	2	5/ Dyes:100	<RL
1,2-dichloroethane	107-06-2	ppm	2	5	<RL
Conclusion			--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 6 of 11

Organotin Compounds

Test Method: ISO 16179

Test Result:

Test Parameter	Unit	RL	Test No.	1
			Material No.	M001
			Formulation Limit	Test Result
Dibutyltin (DBT)	ppm	0.5	20 (*1)	<RL
Mono-, di- and tri-methyltin derivatives	ppm	0.5	5	<RL
Mono-, di- and tri-octyltin derivatives	ppm	0.5	5	<RL
Mono-, di- and tri-phenyltin derivatives	ppm	0.5	5	<RL
Mono- and tri-butyltin derivatives	ppm	0.5	5	<RL
Dipropyltin compounds (DPT)	ppm	0.5	5	<RL
Tetraethyltin Compounds (TeET)	ppm	0.5	1	<RL
Tripropyltin Compounds (TPT)	ppm	0.5	1	<RL
Tetrabutyltin compounds (TeBT)	ppm	0.5	1	<RL
Tetraoctyltin compounds (TeOT)	ppm	0.5	1	<RL
Tricyclohexyltin (TCyHT)	ppm	0.5	1	<RL
Conclusion	--	--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Remark:

*1. Exception: 100ppm for polyurethane based thickeners used at <20% loading

Test Report No.: 244429828c 001

Page 7 of 11

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method: AfPS PAH GS 2019:01

Test Result:

				Test No.	1
				Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit	Test Result
Pyrene	129-00-0	ppm	100	-	<RL
Benzo[ghi]perylene	191-24-2	ppm	100	-	<RL
Benzo[j]fluoranthene	205-82-3	ppm	100	-	<RL
Anthracene	120-12-7	ppm	100	-	<RL
Indeno[1,2,3-cd]pyrene	193-39-5	ppm	100	-	<RL
Benzo[e]pyrene	192-97-2	ppm	100	-	<RL
Benzo[b]fluoranthene	205-99-2	ppm	100	-	<RL
Benzo[k]fluoranthene	207-08-9	ppm	100	-	<RL
Fluoranthene	206-44-0	ppm	100	-	<RL
Acenaphthylene	208-96-8	ppm	100	-	<RL
Dibenz[a,h]anthracene	53-70-3	ppm	100	-	<RL
Chrysene	218-01-9	ppm	100	-	<RL
Phenanthrene	85-01-8	ppm	100	-	<RL
Acenaphthene	83-32-9	ppm	100	-	<RL
Fluorene	86-73-7	ppm	100	-	<RL
Naphthalene	91-20-3	ppm	100	Leather processing: 300 Other: NA	<RL
Benzo[a]anthracene	56-55-3	ppm	100	-	<RL
Sum of the above PAH	-	ppm	-	Textile processing: 200 Leather processing: 300 (excluded Naphthalene) Other: NA	<RL
Benzo[a]pyrene	50-32-8	ppm	10	20	<RL
Conclusion		--	--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 8 of 11

Phthalates – including all other esters of ortho-phthalic acid

Test Method: Organic solvent extraction, GCMS

Test Result:

Test Parameter	CAS No.	Unit	RL	Test No.	1
				Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit	Test Result
Di-n-octyl phthalate(DNOP)	117-84-0	ppm	100	-	<RL
Bis(2-methoxyethyl)phthalate (DMEP)	117-82-8	ppm	100	-	<RL
Di-iso-decyl phthalate(DIDP)	26761-40-0	ppm	100	-	<RL
Di(ethylhexyl) phthalate(DEHP)	117-81-7	ppm	100	-	<RL
Di-isononyl phthalate(DINP)	28553-12-0	ppm	100	-	<RL
Di-n-hexyl phthalate(DnHP)	84-75-3	ppm	100	-	<RL
Butyl benzyl phthalate(BBP)	85-68-7	ppm	100	-	<RL
Dibutyl phthalate (DBP)	84-74-2	ppm	100	-	<RL
Dinonyl phthalate (DNP)	84-76-4	ppm	100	-	<RL
Diethyl phthalate (DEP)	84-66-2	ppm	100	-	<RL
Di-n-propyl phthalate(DPRP)	131-16-8	ppm	100	-	<RL
Di-cyclohexyl phthalate(DCHP)	84-61-7	ppm	100	-	<RL
Di-isobutyl phthalate(DIBP)	84-69-5	ppm	100	-	<RL
Di-iso-octyl phthalate(DIOP)	27554-26-3	ppm	100	-	<RL
1,2-benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters (DHNUP)	68515-42-4/ 68515-50-4	ppm	100	-	<RL
1,2-benzenedicarboxylic acid, di-C6-8 branched and linear alkyl esters, C7-rich (DIHP)	71888-89-6/ 84777-06-0	ppm	100	-	<RL
Diisopentylphthalates	605-50-5	ppm	100	-	<RL
Di-n-pentylphthalates	131-18-0	ppm	100	-	<RL
Sum of the above Phthalates	-	ppm	-	250	<RL
Conclusion		--	--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 9 of 11

Total Heavy Metal

Test Method: Acid digestion, ICP-OES / ICP-MS

Test Result:

Test Parameter	CAS No.	Unit	RL	Test No.	1
				Material No.	M001
				Formulation Limit	Test Result
Arsenic (As)	7440-38-2	ppm	10	50	<RL
Cadmium (Cd)	7440-43-9	ppm	10	20 (50 for pigments)	<RL
Mercury (Hg)	7439-97-6	ppm	2	4 (25 for pigments)	<RL
Lead (Pb)	7439-92-1	ppm	10	100	<RL
Chromium (VI)	18540-29-9	ppm	5	10	<RL
Antimony	7440-36-0	ppm	10	Dye: 50/ Pigment: 250	<RL
Chromium	7440-47-3	ppm	10	Dye and Pigment: 100	<RL
Barium	7440-39-3	ppm	10	Dye and Pigment: 100	<RL
Selenium	7782-49-2	ppm	10	Dye: 20/ Pigment: 100	<RL
Tin	7440-31-5	ppm	10	Dyes: 250	<RL
Nickel	7440-02-0	ppm	10	Dyes: 250	<RL
Copper	7440-50-8	ppm	10	Dyes: 250	<RL
Cobalt	7440-48-4	ppm	10	Dyes: 500	<RL
Silver	7440-22-4	ppm	10	Dyes: 100	<RL
Conclusion			--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 10 of 11

Volatile Organic Compounds (VOC)

Test Method: Organic solvent extraction, GCMS

Test Result:

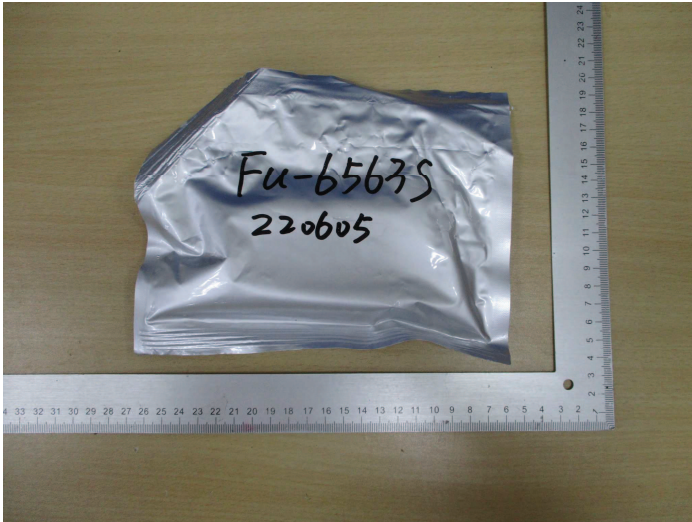
Test Parameter	CAS No.	Unit	RL	Test No.	1
				Material No.	M001
				Formulation Limit	Test Result
Benzene	71-43-2	ppm	20	50	<RL
o-cresol	95-48-7	ppm	100	500	<RL
p-cresol	106-44-5	ppm	100	500	<RL
Xylene	1330-20-7	ppm	100	500	<RL
m-cresol	108-39-4	ppm	100	500	<RL
Conclusion			--	--	Pass

Abbreviation: < = less than
 RL = Reporting Limit
 ppm = part per million

Test Report No.: 244429828c 001

Page 11 of 11

Sample photos



- END -

