Test report - Products



Report No.:	244429828e 001	Page 1 of 12
Client:	Zhejiang Luoxing Chemical Co., Ltd.	
Contact Information:	No. 1621, Bujiao Road, Daqiao Town, Nanhu District Province. 18005730820@189.cn	, Jiaxing City, Zhejiang
Identification/ Model No(s):	Waterborne white color paste LC-9001WD	
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 MRSL version 2.0)	chemical compounds (ZDHC

Other Information: Country of Origin: CHINA.

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

2022-06-24 Date Nicky Chen / Assistant Manager 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.

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Test s	specification:	Test result:					
ZDHC	ZDHC Manufacturing Restricted Substances List - Version 2.0						
1.	Alkylphenols (APs) and Alkylphenol Ethoxylates (APEOs)	Pass					
2.	Chlorobenzenes and Chlorotoluenes	Pass					
3.	Chlorophenols	Pass					
4.	Dyes – Azo (Forming Restricted Amines)	Pass					
5.	Dyes – Carcinogenic or Equivalent Concern	Pass					
6.	Dyes – Disperse (Sensitising)	Pass					
7.	Polycyclic Aromatic Hydrocarbons (PAHs)	Pass					
8.	Total Heavy Metal	Pass					

Material list

Material No.	Material	Location
M001	Liquid	Waterborne white color paste LC-9001WD



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

Abbreviation: < = less than



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Chlorobenzenes and Chlorotoluenes

Test Method: Solvent extraction, GCMS

Test Result:

Test Result.				T ())	
· · · · · · · · · · · · · · · · · · ·				Test No.	1
			1	Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit	Test Result
Chlorobenzene	108-90-7	ppm	1	-	
1,3-Dichlorobenzene	541-73-1	ppm	1	-	<rl< td=""></rl<>
1,4-Dichlorobenzene	106-46-7	ppm	1	-	<rl< td=""></rl<>
1,2,3-Trichlorobenzene	87-61-6	ppm	1	-	<rl< td=""></rl<>
1,2,4-Trichlorobenzene	120-82-1	ppm	1	-	<rl< td=""></rl<>
1,3,5-Trichlorobenzene	108-70-3	ppm	1	-	<rl< td=""></rl<>
1,2,3,4- Tetrachlorobenzene	634-66-2	ppm	1	-	<rl< td=""></rl<>
1,2,3,5- Tetrachlorobenzene	634-90-2	ppm	1	-	<rl< td=""></rl<>
1,2,4,5- Tetrachlorobenzene	95-94-3	ppm	1	-	<rl< td=""></rl<>
Pentachlorobenzene	608-93-5	ppm	1	-	<rl< td=""></rl<>
Hexachlorobenzene	118-74-1	ppm	1	-	<rl< td=""></rl<>
2-Chlorotoluene	95-49-8	ppm	1	-	<rl< td=""></rl<>
3-Chlorotoluene	108-41-8	ppm	1	-	<rl< td=""></rl<>
4-Chlorotoluene	106-43-4	ppm	1	-	<rl< td=""></rl<>
2,3-dichlorotoluene	32768-54-0	ppm	1	-	<rl< td=""></rl<>
2,4-dichlorotoluene	95-73-8	ppm	1	-	<rl< td=""></rl<>
2,5-dichlorotoluene	19398-61-9	ppm	1	-	<rl< td=""></rl<>
2,6-dichlorotoluene	118-69-4	ppm	1	-	<rl< td=""></rl<>
3,4-dichlorotoluene	95-75-0	ppm	1	-	<rl< td=""></rl<>
3,5-dichlorotoluene	25186-47-4	ppm	1	-	<rl< td=""></rl<>
2,3,4-Trichlorotoluene	7359-72-0	ppm	1	5	<rl< td=""></rl<>
2,3,5-Trichlorotoluene	56961-86-5	ppm	1	5	<rl< td=""></rl<>
2,3,6-Trichlorotoluene	2077-46-5	ppm	1	5	<rl< td=""></rl<>
2,4,5-Trichlorotoluene	6639-30-1	ppm	1	5	<rl< td=""></rl<>
2,4,6-Trichlorotoluene	23749-65-7	ppm	1	5	<rl< td=""></rl<>
2,3,4,5-Tetrachlorotoluene	1006-32-2	ppm	1	5	<rl< td=""></rl<>
2,3,4,6-Tetrachlorotoluene	875-40-1	ppm	1	5	<rl< td=""></rl<>
2,3,5,6-Tetrachlorotoluene	1006-31-1	ppm	1	5	<rl< td=""></rl<>
Pentachlorotoluene	877-11-2	ppm	1	-	<rl< td=""></rl<>
Sum of the above COCs	-	ppm	-	200	<rl< td=""></rl<>
1,2-Dichlorobenzene	95-50-1	ppm	1	500	<rl< td=""></rl<>
Conclusion					Pass

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Abbreviation: < = less than

RL = Reporting Limit ppm = part per million

Chlorophenols

Test Method: ISO 17070, GCMS

Test Result:

				Test No.	1
				Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit	Test Result
2-chlorophenol	95-57-8	ppm	5	-	<rl< td=""></rl<>
3-chlorophenol	108-43-0	ppm	5	-	<rl< td=""></rl<>
4-chlorophenol	106-48-9	ppm	5	-	<rl< td=""></rl<>
2,3-dichlorophenol	576-24-9	ppm	5	-	<rl< td=""></rl<>
2,4-dichlorophenol	120-83-2	ppm	5	-	<rl< td=""></rl<>
2,5-dichlorophenol	583-78-8	ppm	5	-	<rl< td=""></rl<>
2,6-dichlorophenol	87-65-0	ppm	5	-	<rl< td=""></rl<>
3,4-dichlorophenol	95-77-2	ppm	5	-	<rl< td=""></rl<>
3,5-dichlorophenol	591-35-5	ppm	5	-	<rl< td=""></rl<>
2,3,4-trichlorophenol	15950-66-0	ppm	5	-	<rl< td=""></rl<>
2,3,5-trichlorophenol	933-78-8	ppm	5	-	<rl< td=""></rl<>
2,3,6-trichlorophenol	933-75-5	ppm	5	-	<rl< td=""></rl<>
2,4,5-trichlorophenol	95-95-4	ppm	5	-	<rl< td=""></rl<>
2,4,6-trichlorophenol	88-06-2	ppm	5	-	<rl< td=""></rl<>
3,4,5-trichlorophenol	609-19-8	ppm	5	-	<rl< td=""></rl<>
Sum of the above	-	ppm	5	50	<rl< td=""></rl<>
Pentachlorophenol (PCP)	87-86-5	ppm	5	-	<rl< td=""></rl<>
Tetrachlorophenols (TeCP) and mixed isomers	25167-83-3	ppm	5	-	<rl< td=""></rl<>
2,3,4,5 - Tetrachlorophenol (2,3,4,5-TeCP)	4901-51-3	ppm	5	-	<rl< td=""></rl<>
2,3,4,6 - Tetrachlorophenol (2,3,4,6-TeCP)	58-90-2	ppm	5	-	<rl< td=""></rl<>
2,3,5,6 - Tetrachorophenol (2,3,5,6-TeCP)	935-95-5	ppm	5	-	<rl< td=""></rl<>
Sum of PCP + TeCP	-	ppm	-	20	<rl< td=""></rl<>
Conclusion					Pass



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

Dyes – Azo (Forming Restricted Amines)

Test Method: EN 14362-1&3, GCMS/LCMS

Test Result:

				Test No.	1
				Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit	Test Result
4,4-oxydianiline	101-80-4	ppm	50	150	<rl< td=""></rl<>
4,4-methylene-bis-(2-chloro-aniline)	101-14-4	ppm	50	150	<rl< td=""></rl<>
3,3-dimethoxylbenzidine	119-90-4	ppm	50	150	<rl< td=""></rl<>
4,4-methylenedianiline	101-77-9	ppm	50	150	<rl< td=""></rl<>
4-chloroaniline	106-47-8	ppm	50	150	<rl< td=""></rl<>
3,3-dimethylbenzidine	119-93-7	ppm	50	150	<rl< td=""></rl<>
6-methoxy-m-toluidine	120-71-8	ppm	50	150	<rl< td=""></rl<>
4,4-thiodianiline	139-65-1	ppm	50	150	<rl< td=""></rl<>
4-aminoazobenzene	60-09-3	ppm	50	150	<rl< td=""></rl<>
2,4,5-trimethylaniline	137-17-7	ppm	50	150	<rl< td=""></rl<>
o-anisidine	90-04-0	ppm	50	150	<rl< td=""></rl<>
4,4-methylenedi-o-toluidine	838-88-0	ppm	50	150	<rl< td=""></rl<>
3,'3-dichlorobenzidine	91-94-1	ppm	50	150	<rl< td=""></rl<>
4-methoxy-m-phenylenediamine	615-05-4	ppm	50	150	<rl< td=""></rl<>
2,6-xylidine	87-62-7	ppm	50	150	<rl< td=""></rl<>
2-naphthylamine	91-59-8	ppm	50	150	<rl< td=""></rl<>
o-toluidine	95-53-4	ppm	50	150	<rl< td=""></rl<>
Benzidine	92-87-5	ppm	50	150	<rl< td=""></rl<>
4-chloro-o-toluidine	95-69-2	ppm	50	150	<rl< td=""></rl<>
4-aminodiphenyl	92-67-1	ppm	50	150	<rl< td=""></rl<>
4-methyl-m-phenylenediamine	95-80-7	ppm	50	150	<rl< td=""></rl<>
2,4-xylidine	95-68-1	ppm	50	150	<rl< td=""></rl<>
o-aminoazotoluene	97-56-3	ppm	50	150	<rl< td=""></rl<>
5-nitro-o-toluidine	99-55-8	ppm	50	150	<rl< td=""></rl<>
2-Naphthylammoniumacetate(*1)	553-00-4	ppm	50	150	<rl< td=""></rl<>
4-chloro-o-toluidinium chloride(*2)	3165-93-3	ppm	50	150	<rl< td=""></rl<>

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4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate(*3)	39156-41-7	ppm	50	150	<rl< td=""><td></td></rl<>	
2,4,5-trimethylaniline hydrochloride(*4)	21436-97-5	ppm	50	150	<rl< td=""><td></td></rl<>	
Conclusion					Pass	

Remark:

*1 The substance is tested and calculated in terms of 2-Naphthylamine

*2 The substance is tested and calculated in terms of 4-Chloro-o-toluidinium

*3 The substance is tested and calculated in terms of 4-Methoxy-m-phenylenediamine

*4 The substance is tested and calculated in terms of 2,4,5-Trimethylaniline

Abbreviation: < = less than



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Dyes – Carcinogenic or Equivalent Concern

Test Method: DIN 54231, LCMSMS

Test Result:

					1
				Test No.	1
				Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit	Test Result
C.I. Basic Violet 14	632-99-5	ppm	100	250	<rl< td=""></rl<>
C.I. Direct Black 38	1937-37-7	ppm	100	250	<rl< td=""></rl<>
C.I. Direct Blue 6	2602-46-2	ppm	100	250	<rl< td=""></rl<>
C.I. Acid Red 26	3761-53-3	ppm	100	250	<rl< td=""></rl<>
C.I. Direct Red 28	573-58-0	ppm	100	250	<rl< td=""></rl<>
C.I. Basic Red 9	569-61-9	ppm	100	250	<rl< td=""></rl<>
C.I. Disperse Blue 1	2475-45-8	ppm	100	250	<rl< td=""></rl<>
C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5	ppm	100	250	<rl< td=""></rl<>
C.I. Disperse Blue 3	2475-46-9	ppm	100	250	<rl< td=""></rl<>
C.I. Basic Green 4 (Malachite Green Oxalate)(*1)	2437-29-8	ppm	100	250	<rl< td=""></rl<>
C.I. Basic Green 4 (Malachite Green Chloride) (*1)	569-64-2	ppm	100	250	<rl< td=""></rl<>
Disperse Orange 11	82-28-0	ppm	100	250	<rl< td=""></rl<>
C.I. Basic Green 4 (Malachite Green)	10309-95-2	ppm	100	250	<rl< td=""></rl<>
C.I. Acid Violet 49	1694-09-3	ppm	100	250	<rl< td=""></rl<>
Basic violet 3 with >0.1% of Michler´s Ketone	548-62-9	ppm	100	250	<rl< td=""></rl<>
Conclusion					Pass

Abbreviation: < = less than

RL = Reporting Limit ppm = part per million

Remark:

*1 The results of Malachit green chloride (569-64-2) and Malachit green oxalate (2437-29-8) were calculated in term of Malachit green (10309-95-2)



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Dyes – Disperse (Sensitising)

Test Method: DIN 54231, LCMSMS

Test Result:

				Test No.	1
				Material No.	M001
Test Parameter	CAS No.	Unit	RL	Formulation Limit(*1)	Test Result
Disperse Yellow 39	12236-29-2	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Brown 1	23355-64-8	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Yellow 1	119-15-3	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 102	12222-97-8	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 106	12223-01-7	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Orange 37/59/76	13301-61-6	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Orange 1	2581-69-3	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Yellow 3	2832-40-8	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Red 11	2872-48-2	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Red 1	2872-52-8	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Red 17	3179-89-3	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Yellow 49	54824-37-2	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 7	3179-90-6	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 26	3860-63-7	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Yellow 9	6373-73-5	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 124	61951-51-7	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 35	12222-75-2	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Orange 3	730-40-5	ppm	100	250 (textile)	<rl< td=""></rl<>
Disperse Blue 35	56524-77-7	ppm	100	250 (textile)	<rl< td=""></rl<>
Conclusion					Pass

Abbreviation: < = less than

RL = Reporting Limit ppm = part per million

Remark:

*1 No limit requirement for Leather and Polymers



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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< td=""></rl<>
Benzo[ghi]perylene	191-24-2	ppm	100	-	<rl< td=""></rl<>
Benzo[j]fluoranthene	205-82-3	ppm	100	-	<rl< td=""></rl<>
Anthracene	120-12-7	ppm	100	-	<rl< td=""></rl<>
Indeno[1,2,3-cd]pyrene	193-39-5	ppm	100	-	<rl< td=""></rl<>
Benzo[e]pyrene	192-97-2	ppm	100	-	<rl< td=""></rl<>
Benzo[b]fluoranthene	205-99-2	ppm	100	-	<rl< td=""></rl<>
Benzo[k]fluoranthene	207-08-9	ppm	100	-	<rl< td=""></rl<>
Fluoranthene	206-44-0	ppm	100	-	<rl< td=""></rl<>
Acenaphthylene	208-96-8	ppm	100	-	<rl< td=""></rl<>
Dibenz[a,h]anthracene	53-70-3	ppm	100	-	<rl< td=""></rl<>
Chrysene	218-01-9	ppm	100	-	<rl< td=""></rl<>
Phenanthrene	85-01-8	ppm	100	-	<rl< td=""></rl<>
Acenaphthene	83-32-9	ppm	100	-	<rl< td=""></rl<>
Fluorene	86-73-7	ppm	100	-	<rl< td=""></rl<>
Naphthalene	91-20-3	ppm	100	Leather processing: 300 Other: NA	<rl< td=""></rl<>
Benzo[a]anthracene	56-55-3	ppm	100	-	<rl< td=""></rl<>
Sum of the above PAH	-	ppm	-	Textile processing: 200 Leather processing: 300 (excluded Naphthalene) Other: NA	<rl< td=""></rl<>
Benzo[a]pyrene	50-32-8	ppm	10	20	<rl< td=""></rl<>
Conclusion					Pass

Abbreviation: < = less than



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Total Heavy Metal

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

Test Result:

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

Abbreviation: < = less than



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Sample photos



- END -

General Terms and Conditions of Business of TÜV Rheinland in Greater China

cases in which the commencement of insolvency proceedings has been dismissed due to lack of assets.

- These General Terms and Conditions of Business of TÜV Rheinland in Greater China ('GTCB') is made between the client and one or more member entities of TÜV Rheinland in Greater China as applicable as the case may be ('TUV Rheinland'). The Greater China hereof refers to Mainland China, Hong Kong and Taiwan. The client hereof includes : 1.1
- a natural person capable to form legally binding contracts under the applicable laws who oncludes the contract not for the purpose of a daily use; (i) Ci
- the incorporated or unincorporated entity duly organized, validly existing and capable to form legally binding contracts under the applicable law.
- 1.2 The following terms and conditions apply to agreed services including consultancy services, information, deliveries and similar services as well as ancillary services and other secondary obligations provided within the scope of contract performance.
- 1.3 Any standard terms and conditions of the client of any nature shall not apply and shall hereby be expressly excluded. No standard contractual terms and conditions of the client shall form part of the contract even if TOV Rheinland does not explicitly object to them.
- 1.4 In the context of an ongoing business relationship with the client, this GTCB shall also apply to future contracts with the client without TUV Rheinland having to refer to them separately in each individual case.

2. Quotations

Scope

Unless otherwise agreed, all quotations submitted by TÜV Rheinland can be changed by TÜV Rheinland without notice prior to its acceptance and confirmation by the other party.

Coming into effect and duration of contracts

- Image involvement and usuation of contracts The contract shell come into defact for the agreed terms upon the quidation letter of TUV. Rheinland or a separate contractual document being signed by both contracting parties, or upon the works requested by the client being carried out by TOV Rominand. If the client instructs TUV Rheinland without receiving a quidation from TUV Rheinland (quotation), TUV Rheinland is, in its oled discretion, entitled to accept the order by giving written notice of such acceptance (including notice sent via electronic means) or by performing the requested services. 3.1
- 3.2 The contract term starts upon the coming into effect of the contract in accordance with article 3.1 and shall continue for the term agreed in the contract.
- 3.3 If the contract provides for an extension of the contract term, the contract term will be extended by the term provided for in the contract unless terminated in writing by either party with a six week notice prior to the end of the contractual term.

Scope of services

- The scope and type of the services to be provided by TÜV Rheinland shall be specified in the contractually agreed service scope of TÜV Rheinland by both parties. If no such separate service scope of TÜV Rheinland exists, then the written confirmation of order by TÜV Rheinland shall be decisive for the service to be provided. 41
- The agreed services shall be performed in compliance with the regulations in force at the time the contract is entered into. 4.2
- 4.3 TÜV Rheinland is entitled to determine, in its sole discretion, the method and nature of the assessment unless otherwise agreed in writing or if mandatory provisions require a specific procedure to be followed
- On execution of the work there shall be no simultaneous assumption of any guarantee of the correctine (proper quality) and working order of either tested or examined parts nor of the installation as a whole and its upstream andor downstream processes, organisations, use and application in accordance with regulations, nor of the systems on which the installation is based. In particular, TÜV Rheinland shall assume no responsibility for the construction, selection of materials and assumed by distallations examined, nor for their use and application in accordance with regulations, unless these questions are expressly covered by the contract. 4.4
- 4.5 In the case of inspection work, TÜV Rheinland shall not be responsible for the accuracy or checking of the safety programmes or safety regulations on which the inspections are based, unless otherwise expressly agreed in writing.
- 4.6 If mandatory legal regulations and standards or official requirements for the agreed s scope change after conclusion of the contract, with a written notice to the client, Rheinland shall be entitled to additional remuneration for resulting additional expenses.
- 4.7The services to be provided by TÜV Rheinland under the contract are agreed exclusively with the client. A contract of third parties with the services of TÜV Rheinland, as well as making available of and justifying confidence in the work results (expert reports, etc.) is not part of the agreed services. This also applies if the client passes on work results (= h10 or in extracts to hird parties) in accordance with clause 11.4.

Performance periods/dates 5

- The contractually agreed periods/dates of performance are based on estimates of the work involved which are prepared in line with the details provided by the client. They shall only be binding if being confirmed as binding by TÜV Rheinland in writing. 5.1
- 5.2 If binding periods of performance have been agreed, these periods shall not commence until the client has submitted all required documents to TÜV Rheinland.
- 5.3 Articles 5.1 and 5.2 also apply, even without express approval by the client, to all extensions of agreed periods/dates of performance not caused by TÜV Rheinland.
- Signed period exercises of periodimatics deaded by in performance, in particular if the client has not fulfilled his duties to cooperate in accordance with clause 61 or has not done so in time and, in particular, has not provided TUV Rheinland with all documents and information required for the performance of the service as specified in the contract.
- 5.51 the performance of TÜV Rheinland is delayed due to unforeseeable circumstances such as force majeure, strikes, business disruptions, governmental regulations, transport obstacles, etc., TÜV Rheinland is entitled to postpone performance for a reasonable period of time which corresponds at least to the duration of the hindrance plus any time period which may be required to resume performance.

The client's obligation to cooperate

- The client shall guarantee that all cooperation required on its part, its agents or third parties will be provided in good time and at no cost to TÜV Rheinland. 6.1
- 6.2 Design documents, supplies, auxiliary staff, etc. necessary for performance of the servi shall be made available free of charge by the client. Moreover, collaborative action of the cli-must be undertaken in accordance with legal provisions, standards, safety regulations a accident prevention instructions. And the client represents and warrants that: a) it has required statutory qualifications;

b) the product, service or management system to be certified complies with applicable laws a regulations; and

c) it doesn't have any illegal and dishonest behaviours or is not included in the list of Enterprises with Serious Illegal and Dishonest Acts of People's Republic of China.

If the client breaches the aforesaid representations and warranties, TÜV Rheinland is entitled to i) immediately terminate the contract/order without prior notice; and ii) withdraw the issued testing report/certificates if any.

6.3 The client shall bear any additional cost incurred on account of work having to be redone or being delayed as a result of late, incorrect or incomplete information provided by or lack of proper cooperation from the client. Even where a fixed or maximum price is agreed, TÜV Rheinland shall be entilled to charge extra fees for such additional expense.

Prices 7

- If the scope of performance is not laid down in writing when the order is placed, invoicing shall be based on costs actually incurred. If no price is agreed in writing, invoicing shall be made in accordance with the price Ist of TOV Rheinand valid at the time of performance. 7.1
- 7.2 Unless otherwise agreed, work shall be invoiced according to the progress of the work 7.3
- If the execution of an order extends over more than one month and the value of the contract the agreed fixed price exceeds 62,500.00 or equivalent value in local currency, TÜV Rheinla may demand payments on account or in instalments. Payment terms

8.1

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- All invoice amounts shall be due for payment without deduction on receipt of the invoice. No discounts and rebates shall be granted.
- 8.2 Payments shall be made to the bank account of TÜV Rheinland as indicated on the invoice, stating the invoice and client numbers.
- 8.3 In cases of default of payment, TÜV Rheinland shall be entitled to claim default interest at the applicable short term loan interest rate publicly announced by a reputable commercial bank in the country where TÜV Rheinland is located. At the same time, TÜV Rheinland reserves the right to claim further damages.
- 8.4 Should the client default in payment of the invoice despite being granted a reasonable grace period, TOV Rheinland shall be entitled to cancel the contract, withdraw the certificate, claim damages for non-performance and refuse to continue performance of the contract.
- 8.5 The provisions set forth in article 8.4 shall also apply in cases involving returned chequic cessation of payment, commencement of insolvency proceedings against the client's assets

- 8.6 Objections to the invoices of TÜV Rheinland shall be submitted in writing within two weeks of receipt of the invoice.
- 8.7 TÜV Rheinland shall be entitled to demand appropriate advance payments
- 8.8 TUV Rheinland shall be entitled to raise its fees at the beginning of a month if overheads and/or purchase costs have increased. In this case, TUV Rheinland shall notify the client in writing of the rise in fees this notification shall be used one month prior to the date on which the rise in fees shall come into effect (period of notice of changes in fees). If the rise in fees vertices 19% per contractual year, the client shall no thave the right to terminate the contract. If the rise in fees vectors 15% per contractual year, the client shall be entitled to terminate the contract. If the rise in fees vectors 15% per contractual year, the client shall be entitled to terminate the contract. If the rise in fees vectors 15% per contractual year, the client shall be entitled to terminate the contract by the end of the period of notice of changes in fees. If the contract is not terminated, the changed fees shall be deemed to have been agreed upon by the time of the expiry of the notice period.
- 8.9 Only legally established and undisputed claims may be offset against claims by TÜV Rheinland

Acceptance of work

- 9.1 Any part of the work result ordered which is complete in itself may be presented by TÜV Rheinland for acceptance as an instalment. The client shall be obliged to accept it immediately. If acceptance is required or contractually agreed in an individual case, this shall be deemed to have taken place two (2) weeks after completion and handver of the work, unless the client refuses acceptance within this period stating at least one fundmental breach of contract by TOV Rheinian. 9.2
- 9.3 The client is not entitled to refuse acceptance due to insignificant breach of contract by TÜV Rheinland.
- 9.4 If acceptance is excluded according to the nature of the work performance of TÜV Rheir the completion of the work shall take its place.
- 9.5 If the client was unable to make use of the time windows provided for within the scope of a cettification procedure for auditing/performance by TOV Rheinland and the certificate is therefore to be withdrawn (c.p. performance of surveillance audits). TOV Rheinland is entitled to immediately charge a lump-sum compensation of 10% of the order amount as compensation for expenses. The client reserves the right to prove that the TOV Rheinland has incurred no damage whatsoever or only a considerably lower damage than the above lump sum.
- 9.6 Insofar as the client has undertaken in the contract to accept services, TÜV Rheinland shall also be entitled to charge lump-sum damages in the amount of 10% of the order amount as compensation for expenses if the service is not called within one year latter the order has been placed. The client reserves the right to prove that the TÜV Rheinland has incurred no damage whatsoever on year considerably kower damage than the above methioned lump sum.

10. Confidentiality

- 10. Contractinative 10. Econtractinative 10.1 For the purpose of these terms and conditions, "confidential information" means all information, documents, images, drawings, know-how, data, samples and project documentation which one part (the "closicoling party") hands over, transfers or chenvise discloses to the other party (the "receiving party"), and the confidential information created during performance of work by TUV Rheinitadi, Including product testing data, defects, conformity to the technical standard and related reports. Confidential information is expression to the data and know-how collected, compiled or otherwise obtained by TUV Rheinitadi (non-personal) within the scope of the provision of services by TUV Rheinitadi (VD Rheinitadi Le statiled to store, use, luther develop and pags on the data theorem conclusion with more provision of services by (TUV Rheinitadi Le provision of services of developing new services, improving services and analysing the provision of services of developing new services, improving services and analysing the provision of services by the service of the provision of services of the provision of services of the purposes of developing new services, improving services and analysing the provision of services by the service of the provision of services and the service and analysing the provision of services of the purposes of developing new services, improving services and analysing the provision of services of the purpose of developing new services and services of the provision of services of developing new services and analysing the provision of services of the provision of
- services, improving services and analysing the provision of services. 10.2 The disclosing party shall mark all confidential information disclosed in written form as confidential before passing it onto the receiving party. The same applies to confidential information transmitted by e-mail. If confidential information is disclosed orally, the receiving parts shall be appropriately informed in advance and the disclosing party shall confirm in writing the confidentially nature of the information within five working days of oral disclosure. Where the disclosing party fails to do so within the signizated period, the receiving party shall only the confidentially obligations hereunder towards such information.
- 1.3 All confidential information which the disclosing party transmits or otherwise dis receiving party and which is created during performance of work by TÜV Rheini a)may only be used by the receiving party for the purposes of performing the contract, ur expressly otherwise agreed in writing by the disclosing party;

b)may not be copied, distributed, published or otherwise disclosed by the receiving party, unless this is necessary for fulfiling the purpose of the contract or TUV Rheinland is required to pass on confidential information, inspection reports or documentiation to the government authorities, judicial court, accreditation bodies or third parties that are involved in the performance of the contract.

c)must be treated by the receiving party with the same level of confidentiality as the receiving party uses to protect its own confidential information, but never with a lesser level of confidentiality than that which is reasonably required.

10.4 The receiving party may disclose any confidential information received from the disclosing only to those of its employees who need this information to perform the services required contract. The receiving party undertakes to oblige these employees to observe the same k secrecy as set forth in this confidentiality clause.

- 10.5 Information for which the receiving party can furnish proof that
 - a)it was generally known at the time of disclosure or has become g violation of this confidentiality clause by the receiving party; or

b)it was disclosed to the receiving party by a third party entitled to disclose this information; or c)the receiving party already possessed this information prior to disclosure by the disclosing party

d)the receiving party developed it itself, irrespective of disclosure by the disclosing party, shall not be deemed to constitute "confidential information" as defined in this confidentiality clause.

- 10.6 All confidential information shall remain the property of the disclosing party. The receiving party hereby agrees to immediately (i) return all confidential information, including all copies, to the disclosing party, and/or (ii) on request by the disclosing party, to destroy all confidential information, including all copies, and confirm the destruction of this confidential information to the disclosing party. i ation to the Information, including all copies, and confirm the destruction of this confidential information to the disclosing party in writing, at any time if so requested by the disclosing party but at the latest and without special request after termination or expiry of the contract. This does not extend to include reports and certificates prepared for the client solely for the purpose of fulfiling the obligations under the contract, which shall remain with the client. However, TUV Rheniand is entitled to make file copies of such reports, contributes and the regulations and the results and for general documentation purposes required by laws, regulations and the requirements of working procedures of TUV Rheinland.
- 10.7 From the start of the contract and for a period of three years after termination or expiry of the contract, the receiving party shall maintain strict secrecy of all confidential information and shall not disclose this information to any third parties or use it for itself.

Copyrights and rights of use, publications 11

- 11.1 TŪV Rheinland shall retain all exclusive copyrights in the reports, expert reports/opinions, test reports/results, results, calculations, presentations etc. prepared by TŪV Rheinland, unless otherwise agreed by the parties in a separate agreement. As the owner of the copyrights, TŪV Rheinland is free to grant others the right to use the work results for individual or all types of use ("right of use")
- (1) ignite use (112 The client receives a simple, unlimited, non-transferable, non-sublicensable right of us contents of the work results produced within the scope of the contract, unless otherwise by the parties in a separate agreement. The client may only use such reports, reports/priories, test reports/results, results calculations, presentations etc. prepared wi scope of the contract for the contractually agreed purpose.
- 11.3 The transfer of right of use of the generated work results regulated in clause 11.2. of the GTCB is subject to full payment of the remuneration agreed in favour of TÜV Rheinland.
- 11.4 The client may use work results only complete and unshortened. The client may only pass on the work results in full unless TÜV Rheinland has given its prior written consent to the partial passing on of work results.
- 11.5 Any publication or duplication of the work results for advertising purposes or any further use of the work results beyond the scope regulaed in clause 11.2 needs the prior written approval of TUV Rheinland in each individual case.
- 11.5 TÜV Rheinland may revoke a once given approval according to clause 11.5 at any time without stating reasons. In this case, the client is obliged to stop the transfer of the work results immediately at his own expense and, as far as possible, to withdraw publications.
- 11.7 The consent of TÜV Rheinland to publication or duplication of the work results does not entitle the client to use the corporate logo, corporate design or test/certification mark of TÜV Rheinland.

12. Liability of TÜV Rheinland

Lability of 10V instantial insepactive of the legal basis, to the fullest extent permitted by applicable law, in the eve breach of contractual obligations or tort, the liability of TUV Rheinland for all damages, loss embursement of expenses caused by TUV. Rheinland, its legal representatives employees shall be limited to: (i) in the case of a contract with a fixed overall fee, three tim overall fee for the entitie contract, (ii) in the case of a contract for annually recurring servic agreed annual fee, (iii) in the case of a contract precessiv charged on a time and material b 12.1

avairum of 20,000 Euro or equivalent amount in local currency; and (iv) in the case of ramework agreement that provides for the possibility of placing individual orders, three times on the foe for the individual order under which the damages or losses have occurred volumitsanding the above, in the event that the total and accurrulated liability calculate coording to the foregoing provisions exceeds 2.5 Million Euro or equivalent amount in loca urrency, the total and accurrulated liability of TUX Pheniand shall be only limited to and shall no xceed the said 2.5 Million Euro or equivalent amount in local currency.

- 12.2 The limitation of liability according to article 12.1 above shall not apply to damages and/or losses caused by mailce, intent or gross negligence on the part of TUV Rheiniand or its vicarious agents. Such limitation shall not apply to damages for a person's death, physical injury or liness.
- Used minimation sime for expry to damages for a parsion statism, prysola mitry to micro-123. In cases involving a fundamental breach of contract, TOV Rheinland will be liable even where minor negligence is involved. For this purpose, a "fundamental breach" is breach of a material contractual obligation, the performance of which permits the due performance of the contract. Any claim for damages for a fundamental breach of contract shall be limited to the amount of damages reasonably foresene as a possible consequence of such breach of contract and the time of the breach (reasonably foreseeable damages), unless any of the circumstances described in article 12.3 and the circumstances described in article
- 12.4 TUV Rheinland shall not be liable for the acts of the personnel made available by the client to support TUV Rheinland in the performance of its services under the contract, unless such personnel made available is regarded as vicarious agent of TUV Rheinland. If TUV Rheinland it TUV Rheinland it TUV Rheinland its and table for the acts of the personnel made available by the client under the foregoing provision, the client shall indeminif YUV Rheinland. If UV Rheinland its and the indeministry of the regulation of the second seco
- 12.5 Unless otherwise contractually agreed in writing, TÜV Rheinland shall only be liable under the contract to the client.
- 12.6 The limitation periods for claims for damages shall be based on statutory provision
- 12.7 None of the provisions of this article 12 changes the burden of proof to the disadvantage of the

13. Export control

- 13.1When passing on the services provided by TÜV Rheinland or parts thereof to third parties in Greater China or other regions, the client must comply with the respectively applicable regulations of national and international export control law.
- 13.2The performance of a contract with the client is subject to the proviso that there are no obstacles to performance due to national or international foreign trade legislations or embargos and/or sanctions. In the event of a violation, TÜV Rheinland shall be emitted to terminate the contract with immediate effect and the client shall compensate for the losses incured thereof by TÜV Rheinland.

14. Data protection notice

Data protection notice TUV Rheinland processes presental data of the client for the purpose of fulfilling this contract. In elevana legal bencesses presental data of the client for other legal purpose in accordance with the elevana legal besis. The personal data of the client will only be discosed in other natural or legal persons (if the legal requirements are met. This also applies to transfers to third countries. The personal data will be delated immediately as coors as a corresponding reason for delation arises. Data subjects may exercise the following rights: right of information, right of restification, right of deletion, right of processing immediately as coors complaint with the completent data protection supervisory authority. For further delatis on the processing of personal data by TUV. Rheinland as the person responsible or contract processor, personal data by TUV. Rheinland be ornead at datenschurz(betur, cor, or large bot at the following address: TUV. Rheinland AG, clo Group Data Protection Officer, Am Grauen Stein, 51105 Cologne, Germany.

15. Test material: transport risk and storage

- 15.1The risk and costs for freight and transport of documents or test material to and from TÜV Rheinland as well as the costs of necessary disposal measures shall be borne by the client.
- 15.2Any destroyed and otherwise worthless test material will be disposed of by TÜV Rheinland for the client at the expense of the client, unless otherwise agreed.
- 15.3Undamaged test material shall be stored by TÜV Rheinland for four (4) weeks after completion of the test. If a longer storage period is desired, TÜV Rheinland charges an appropriate storage fee.
- 15.4After the expiry of the 4 weeks or any longer period agreed upon, the test material will be disposed of by TÜV Rheinland for the client for a fee in accordance with clause 15.2.

16. Termination of the contract

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- 16.1 Notwithstanding clause 3.3 of the GTCB, TÜV Rheinland and the client are entitled to terminate the contract in its entirety or, in the case of services combined in one contract, each of the combined parts of the contract individually and independently of the continuation of the remaining services with six (6) months' notice to the end of the contractually agreed term.
- 16.2For good causes, TÜV Rheinland may consider giving a written notice to the client to terminate the contract which includes but not limited to the following: a) the client does not immediately notify TÜV Rheinland of changes in the conditions within the company which are relevant for certification or signs of such changes;

d) a substantial deterioration of the financial circumstances of the client occurs and as a result the payment claims of TUV Rheinland under the contract are considerably endangered and TUV Rheinland cannot reasonably be expected to continue the contractual relationship.

To the event of the maximum percepticate to committee the contractional extensions mutual 163 in the event of termination with written notice by TUV Rheinland for good cause. TUV Rheinland shall be entitled to a lump-sum claim for damages against the client if the conditions of a claim for damages exist. In this case, the client shall one of 5% of the remuneration to be gaid until the end of the fixed contract term as lump-sum compensation. The client reserves the right to prove that there is no damage or a considerably lower damage, TUV Rheinland reserves the right to prove that considerably higher damage in individual cases.

16.4TÜV Rheinland is also entitled to terminate the contract with written notice if the client has not been

of othermatic is easily the set of the time windows for auditing window more provision provided by TDV Reinland within the scope of a certification procedure and the certificate therefore has to be withdrawn (for example during the performance of monitoring audits). Clause 16.3 applies accordingly.

All amendments and supplements must be in writing in order to be effective. This also applies to amendments and supplements to this clause 17.1.

Should one or several of the provisions under the contract and/or these terms and conditions be or become ineffective, the contracting parties shall replace the invalid provision with a legally valid provision that comes closest to the content of the invalid provision in legal and commercial terms.

a)If TÜV Rheinland in question is legally registered and existing in the People's Republic of China, the contracting parties hereby agree that the contract and these terms and conditions shall be governed by the laws of the People's Republic of China.

b)/T 0/V Rheinland in question is legally registered and existing in Taiwan, the contracting parties hereby agree that the contract and these terms and conditions shall be governed by the laws of Taiwan.

c)if TÜV Rheinland in question is legally registered and existing in Hong Kong, the contracting parties hereby agree that the contract and these terms and conditions shall be governed by the laws of Hong Kong.

a)in the case of TÜV Rheinland in question being legally registered and existing in the People's Republic of China, to China International Economic and Trade Arbitration Commission (CIETAC) to be settled by arbitration under the Arbitration Rules of CIETAC in force when the arbitration is submitted. The arbitration shall take place in Beijing, Shanghai, Shenzhen or Chongqing as appropriately chosen by the claiming party.

bi) in the case of TUV Reheland in question being legally registered and existing in Taiwan, to Chinese Arbitration Association Taipel Branch to be arbitrated in accordance with its then current Rules of Arbitration. The arbitration shall take place in Taipei.

Control to the case of TUV Rheinland being legally registered and existing in Hong Kong, to Hong Kong International Arbitration Centre (HKAC) to be settled by arbitration under the HKIAC Administered Arbitration Russien force when the Notice of Arbitration is submitted in accordance with these rules. The arbitration shall take place in Hong Kong.

The decision of the relevant arbitration tribunal shall be final and binding on both parties. The arbitration fee shall be borne by the losing party.

Any dispute in connection with the contract and these terms and conditions or the ex-thereof shall be settled friendly through negotiations. Unless otherwise stipulated in the contract, if no settlement or no agreement in respect of the extension of the negotiation period can be reached within two months of the arising of the dispute, the dispute shall be submitted:

17.3 Unless otherwise stipulated in the contract, the governing law of the contract and these terms and conditions shall be chosen following the rules as below:

b) the client misuses the certificate or certification mark or uses it in violation of the contract

c) in the event of several consecutive delays in payment (at least three times);

17. Partial invalidity, written form, place of jurisdiction and dispute resolution