



China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE
(Registration No. CNAS L2382)

**Guangzhou Technical Center of Atotech (China) Chemicals
Limited**

(Legal Entity: Atotech (China) Chemicals Co., Ltd.)

No.73, Xinzhuang 2nd Road, Yonghe Economic Zone, GETDD, Guangzhou,
Guangdong, China

is accredited in accordance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence to undertake the service described in the schedule attached to this certificate.

The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.

Effective Date: 2019-01-17

Expiry Date: 2023-01-14

Signed on behalf of China National Accreditation Service for Conformity Assessment

China National Accreditation Service for Conformity Assessment(CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Laboratory Accreditation Cooperation Mutual Recognition Arrangement (APLAC MRA). The validity of the certificate can be checked on CNAS website at <http://www.cnas.org.cn/english/findanaccreditedbody/index.shtml>

Name: Guangzhou Technical Center of Atotech (China) Chemicals Limited

Address: No. 73, Xinzhuang 2nd Road, Yonghe Economic Zone, GETDD, Guangzhou, Guangdong, China

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Accreditation Criteria: ISO/IEC 17025 and relevant requirements of CNAS

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SCHEDULE 3 ACCREDITED TESTING SCOPE

№	Test Object	Item/Parameter		Standard or Method	Note
		№	Item/ Parameter		
未分组					
1	Metal Coating	1	Heat cycle test of electroplated plastic parts	Standard specification for decorative electroplated coatings of copper plus Nickel plus Chromium on plastics ASTM B604-91(2015) appendixes A1	Accredited only for temperature range (85~-30) °C.
		2	Thickness of electroplated coatings	Standard test method for measurement of metal and oxide coating thickness by microscopical examination of a cross section ASTM B487-85 (2013)	Standard test method for measurement of coating thickness by X-ray Spectrometry ASTM B568-98(2014)
				Standard method for Copper -Accelerated Acetic Acid-salt spray (Fog) testing (CASS test) ASTM B368-09(2014)	
3	Copper -Accelerated Acetic Acid Salt Spray Test (CASS)	Corrosion tests in artificial atmospheres -salt spray tests ISO 9227: 2017 (E) 5.4			



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№	Test Object	Item/Parameter		Standard or Method	Note
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				Corrosion tests in artificial atmospheres–salt spray tests GB/T10125-2012 5.4	
		4	Acetic-Acidic Salt Spray Test (ASS)	Corrosion tests in artificial atmospheres –salt spray tests ISO 9227: 2017 (E) 5.3	
				Corrosion tests in artificial atmospheres–salt spray tests GB/T10125-2012 5.3	
		5	Neutral salt spray test (NSS)	Corrosion tests in artificial atmospheres –salt spray tests ISO 9227: 2017 (E) 5.2	
				Corrosion tests in artificial atmospheres–salt spray tests GB/T10125-2012 5.2	
		6	Simultaneous thickness and electrochemical potential determination of multilayer nickel deposits (STEP test)	Standard test method for simultaneous thickness and electrode potential determination of individual layers in multilayer Nickel deposit (STEP test) ASTM B764-04 (2014)	
		7	Number of discontinuities in Chromium electroplating	Standard specification for electrodeposited coatings of Copper plus Nickel plus Chromium and Nickel plus Chromium ASTM B456-17 appendixes X4	
				Standard specification for decorative electroplated coatings of Copper plus Nickel plus Chromium on plastics ASTM B604-91(2015) appendixes X4	
		8	Number of discontinuities in Chromium electroplating	Standard specification for electrodeposited coatings of Copper plus Nickel plus Chromium and Nickel plus Chromium ASTM B456-17 appendixes X5	
				Standard specification for decorative electroplated coatings of Copper plus Nickel plus Chromium on plastics ASTM B604-91(2015) appendixes X4	
		9	Internal stress of plated metallic coatings	Standard test method for measurement of internal stress of plated metallic coatings with Spiral contractometer ASTM B636/636M-15	
		10	Ductility of plated metallic coatings	Standard practice for micrometer bend test for ductility of electrodeposits ASTM B490-09(2014)	



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№	Test Object	Item/Parameter		Standard or Method	Note
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		11	Vickers microhardness of electroplated coatings	Metallic and other inorganic coatings - Vickers and Knoop microhardness ISO 4516:2002	Accredited only for HV0.1&HV0.2
		12	Peel strength test	Peel strength of Metallic Clad Laminates IPC TM650-94 2.4.8	
2	electroless plating	1	Phosphor content in Nickel-phosphor layer	Quantitative EDX analysis for P content in Ni-P layer WI-TC-MS-015-08	
3	Industrial water&Industrial waste water	1	Calcium	Water quality- Determination of calcium -ETDA titrimetric method GB/T7476-1987	
		2	Total organic carbon	Water quality- Determination of total organic carbon -Combustion oxidation nondispersive infrared absorption method HJ 501-2009	
		3	Concentration of chloride, nitrate, nitride, orthophosphate and sulfate	Water quality- Determination of dissolved anions by liquid chromatography of ions-Part 1: determination of : chloride, nitrate, nitride, orthophosphate and sulfate in waste water ISO 10304-1:2007(E)	
		4	Nickel	Water quality- Determination of Nickel - Flame Atomic Absorption Spectrometric method GB/T11912-1989	
		5	Chemical oxygen demand (COD)	Water quality- Determination of the chemical oxygen demand- Dichromate method HJ 828-2017	
		6	pH value	Water quality- Determination of pH value-glass electrode method GB/T6920-1986	
		7	Copper, zinc, lead and cadmium	Water quality- Determination of copper, zinc, lead and cadmium-atomic Absorption spectrometry GB/T7475-1987 GB/T7475-1987	
		8	Chloride	Water quality- Determination of Chloride-Silver Nitrate titration method GB/T11896-1989	
		9	Conductivity	Water quality: Determination of electrical conductivity ISO 7888:1985	



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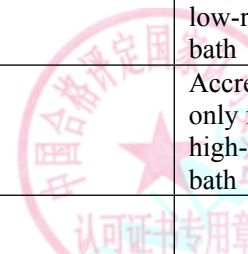
№	Test Object	Item/Parameter		Standard or Method	Note
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		10	Cr(VI)	Water quality-Determination of chromium(VI) -1,5 Diphenylcarbohydrazide spectrophotometric method GB/T7467-1987	
		11	Pb	Standard Test Methods for lead in water ASTM D3559-2015	Accredited only for Test Method A&Test Method C
4	Electroplating bath solutions	1	Copper Sulfate	Analytical method for Copper sulfate in acid copper plating baths A0000068-06	
				Analytical method for Copper sulfate in acid copper plating baths A0000069-02	Accredited only for acid copper plating baths with iron
				Analytical method for Copper sulfate in acid copper plating baths A0000410-TIT-03-03	Accredited only for GMF bath
		2	Sulfuric Acid	Analytical method for Sulfuric Acid in acid copper plating baths A0000028-04	Accredited only for EL bath
				Analytical method for Sulfuric Acid in acid copper plating bath A0000411-TIT-02-08	Accredited only for GMF bath
		3	Chloride content	Analytical method for chloride in acid copper baths A0000060-TIT-06-04	Accredited only for EL bath



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				Analytical method for chloride in acid copper baths A0000412-TIT-02-04	Accredited only for GMF bath
4			Total Nickel	Analytical method for nickel content in nickel bath A0000364-TIT-03-15	
5			Boric Acid	Analytical method for Boric acid in nickel bath A0000352-TIT-04-09	
6			Chloride content	Analytical method for Chloride in nickel bath A0000480-TIT-05-17	
7			pH	Analytical method for pH in nickel bath A0000932-PHY-01-04	
8			Cr, Fe, Ni, Pb, Cd, Zn	Cr, Fe, Ni, Pb, Cd and Zn as impurities in acidic copper baths A0001605-02	
9			Cr, Fe, Cu, Pb, Sn, Cd	Cr, Ni, Cu, Pb and Cd as impurities in cyanidic zinc baths A0001615-01	
10			Cr, Ni, Cu, Pb, Cd	Cr, Ni, Cu, Pb and Cd as impurities in cyanidic zinc baths A0001616-01	
11			Fe	Iron (Fe) in Chromium(VI)-bathes A0001757-02	
12			Pd	Determination of Palladium A0000154-AA-05-02	Accredited only for low-range bath
				Determination of Palladium A0000156-AA-05-05	Accredited only for high-range bath
13			Au	Determination of Gold A0000161-AA-05-07	
14			Cr,Fe,Ni,Pb,Cd,Zn	Cr, Fe, Ni, Pb, Cd and Zn as impurities in cyanidic copper baths A0001607-01	



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		15	Cr,Fe,Cu,Zn	Cr, Fe, Cu and Zn as impurities in e'less nickel baths A0001608-01		
		16	Zn,Cr,Fe,Cu,Ca,Mg,Mn	Zn, Cr, Fe, Cu, Ca,, Co, Mg and Mn as impurities in nickel baths A0001614-02		
		17	Cu,Pb	Determination Cu,Pb in Chrome bath A0001603-01		
		18	cu	Determination Cu in Stannatech bath A0000192-06		
		19	Sn	Determination total Tin in Stannatech bath A0000191-05		
		20	Ni	Determination Nickel in Zn-Ni bath A0000170-04		
		21	Zn	Determination Zinc in Zn-Ni bath A0000171-03		
				Determination Zinc in Passivated bath A0000175-AA-02-09		
		22	Fe	Determination Iron in passivated bath A0000176-AA-02-09		
		23	Concentration of chloride and sulfate in hard chromium baths	Determination of catalyst, chloride and sulfate in hard chromium baths A0000447-06		
		24	Concentration of total organic carbon	Determination of the total organic carbon in acid copper baths A0001656-02		
				Determination of the total organic carbon in nickel baths A0001298-03		
25	Surface tension	Surface active agents-Determination of surface tension GB/T22237-2008		Accredited only for Plate method		
5	Chromate Conversion Coatings	1	Cr(VI)	Metrallic and other inorganic coatings-Chromate conversion coatings on zinc, cadmium, aluminium-zinc alloys and zinc-aluminium alloys ISO 3613:		

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				2010(E)	
6	Nickel foils	1	Sulfur	Steel and iron-Determination of total carbon and sulfur content Infrared absorption method after combustion in an induction furnace GB/T20123-2006	Accredited only for sulfur in Nickel foils analysis



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