中国兵器工业集团 NORINCO GROUP 北方化学工业股份有限公司 NORTH CHEMICAL INDUSTRIES CO.,LTD.

PRODUCT BROCHURE

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COMPANY PROFILE

North Chemical Industries Co., Ltd (abbreviated to NCIC) is the largest specialized nitrocellulose producer and seller which belongs to China North Ind ustries Group Corporation(NORINCO) and listed on the stock(Code: 002246). NCIC is the first nitrocellulose manufacturer in China, headquartered in Luzhou, Sichuan, with its marketing center located in Chengdu, Sichuan. We currently have a key civilian product development center of NORINCO, two research platforms: the Cellulose Product Development Center and the Sichuan Provincial Enterprise Technology Center. The two production bases are respectively located in Luzhou and Nanchong.

Since 2004, NCIC is the biggest NC supplier all over the world, production and sales consistently maintained a leading position. It can provide more than 110 types of nitrocellulose series products, which are exported to more than 50 countries and regions around the world. It has a group of globally renowned experts in the research and development, production, technology, application, safety and other professional fields of nitrocellulose. NCIC takes safety production as the foundation, strictly controls product quality, and takes customer satisfaction as its responsibility. Over the years, it has received widespread praise from customers. NCIC is the excellent supplier for Akzo Nobel, Sherwin- Williams, DIC group, Sunchemical, Procter & Gamble, Lanxess, Teikoku, etc., which are the world' s top 500 companies.

DEVELOPMENT COURSE

2024
In 2024, we have launched a recommendation meeting for low nitrogen, low viscosity NC, which is used for high-end ink products.

2020
Company name change to" North Chemical Industries Co., Ltd"

2017
Acquisition of "Shanxi Xinghua Chemical Co.,LTD"

2013
Acquisition of Xiangyang pump Co., LTD

2009
NC solution product launch

2008
Become public at Shenzhen Stock Exchange , Stock Code. 002246

2005
The company entered the period of listing guidance.

2004
Change the name to SICHUAN NITROCELL Co., LTD
Become the world's largest supplier of nitrocellulose

2002
Establish company,
"SICHUAN NITROCELL LTD"

NC INTRODUCTION

Cellulose Nitrate, known as nitrocellulose(abbreviates to NC), is using renewable cellulose as raw material.NC is a kind of non-toxic, biodegradable andenvironment friendly material.
Our advantages:
Supplies all series of NC products, such as NCpowder, NC chips and NC solution.Adopt different renewable raw material includerefined cotton, woad pulp and cotton pulp. Provide consistent quality,easy flowing, safe and reliable products, passed IS09001.Customize products.
Among them, the high-quality nitrocellulose are produced from high-quality wood pulp and cotton pulp, through advanced process technology and special process equipment.

- Better uniformity
- High transmittance, high whiteness, and lighter color
- Less impurities, faster dissolution
- L-type wood pulp nitrocellulose has excellent alcohol solubility
- High density, conducive to packaging and transportation



2.1.1 NOMENCLATURE AND CLASSIFICATION RULES

e.g. H1/2 EA H-high nitrogen content;1/2-viscosity 1/2s; EA-use ethyl alcohol as wetting agent.

NITROGEN CONTENT

NC is divided into type H (high nitrogen content). type M (middle nitrogen content)and type L (low nitrogen content), Furthermore, type H, type M and type L can be further classified by viscosity.

Type	Characteristics	Nitrogen content (%)
type H	1, Easy to be dissolved in ester solvent, also called ester soluble NC. 2. Form hard film 3. Solvents volatile faster than L type. 4.Can be diluted by alcohol aromatic and aliphatic solvents. 5. Excellent mechanical properties.	11.7~12.2
type L	1. Easy to be dissolved in alcohol solvents, also called alcohol soluble NC. 2.Form thermoplastic film. 3.Can be dissolved in alcohol (particularly ethanol or methanol) 4.Easily diluted by aromatic solvents. 5.To be used for special formulation.	10.7~11.4
type M	Properties of type M is between type H and type L.	11.4~11.7

2.1.2 VISCOSITY

Type	Specification	Viscosity Range(Sec.)		
		Method A	Method B	Method C
	1/32	—	—	0.6~1.0
	1/16	—	—	1.1~1.6
	1/8a	—	—	1.7~2.2
	1/8b		—	2.3~2.8
	1/4a	—	—	3.1~4.9
	1/4b	—	—	5.0~8.0
	1/4c	—	—	8.1~10.0
	1/2a	—	3.0~6.0	—
	1/2b	—	6.1~8.4	—
	1	—	8.5~16.0	—
	5	4.0~7.5	—	—
H、M、L	10	8~15	—	—
	20	16~25	—	—
	30	26~35	—	—
	40	36~50	—	—
	60	51~70	—	—
	80	71~100	—	—
	120	101~135	—	—
	200	136~219	—	—
	300	220~350	—	—
	600	351~599	—	—
	800	600~1000	—	—
H	1500	1200~2000	—	—

2.2 UN CLASSIFICATION

According to the United Nations "proposal for the transport of dangerousgoods", NC products are classified as follows:

Catalogue	UN No	Index
NC with water	2555	water ≥ 25%
NC with alcohol	2556	Nitrogen ≤ 12.6%(By dry weight) alcohol ≥ 25%
NC chips	2557	Nitrogen ≤12.6%(By dry weight) plasticizer ≥ 18%
NC solution	2059	Nitrogen ≤12.6%(By dry weight) NC content ≤ 55%

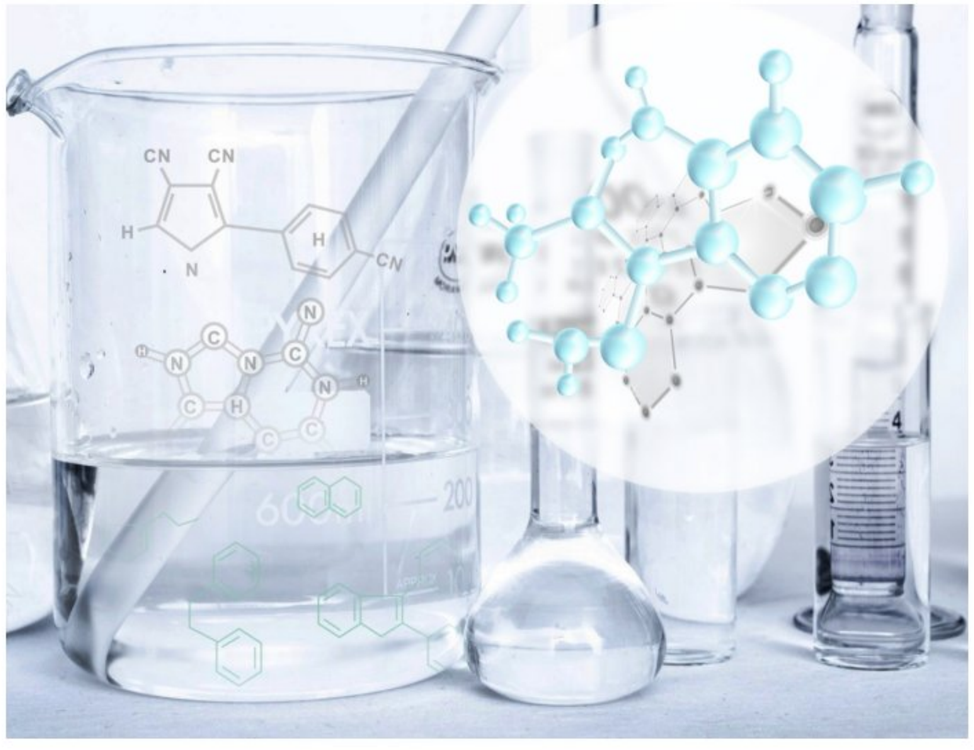
NC SOLUTION

NC solution is a kind of slightly yellow transparent viscous liquid formed by dissolving NC with organic solvents like butyl acetate or ethyl acetate. By using NC solution directly, the risk in the dissolution process of using conventional NC could be avoided .

NCIC provides standard NC solution, also NCIC can supply with customized production according to customer's special formula.

例如:

Item	H1/4NC	Ethyl acetate	Ethanol	Anti-yellowing agent
Percent by weight(%)	40~45	15~25	30~40	1~2



2.1.3 ANALYSIS METHOD

DRYING SAMPLES

The various types of NCIC NC are available wet with alcohol or water.In order to determine properties such as viscosity, nitrogen content, ash, etc,samples must be dried as follows:

About 1.3 multiple of sample required, after being torn to loose-form and mixed evenly, are weighed into a few aluminium dishes. The thickness of sample should be 10-15 mm or so.

Place the dishes into a safety oven and maintain at 100-105℃ for one hour if NC is with alcohol. Maintain at 108-112℃ for one hour if NC is with water, then cool them in desiccators for 30-40 min

For safety reasons, the latch on such an oven should be removed.

VISCOSITY-FALLING BALL METHOD

Principle:

The viscosity of NC is determined by measuring the time in seconds. It takes for a metal ball of specified size and density to fall through 10 inches of solution in a 1-inch-diameter tube at 25.0±0.5℃.

Procedure:

According to different viscosity, make up solution as the mass concentration in below table with dried NC accurate to 0.1 gram. The NC will dissolve more readily if the alcohol and toluene are added first to thoroughly wet the NC, followed by the ethyl acetate. Close the bottle tightly; tumble or shake until a uniform solution is obtained. Put the NC solution into clean tube used for testing viscosity up to 30mm and seal it with wood stopper. Place the tube into water of 25.0±0.5℃ till there is no air bubble in the solution. Drop the ball in the center of the tube and measure the seconds it takes for the ball to pass through the solution between the two marks.

Item	Component		
	Method A(≥3s)	Method B(1/2s、1s)	Method C(≤1/4s)
NC	12.2%	20.0%	25.0%
Toluene	48.3%	44.0%	41.2%
Ethyl acetate	17.5%	16.0%	15.0%
Alcohol	22.0%	20.0%	18.8%

VOLATILE CONTENT

Principle:
The volatile content, consisting of either alcohol or water, is determined by drying a weighed sample in a current of warm air and measuring the loss in weight.
Procedure:
Rapidly weigh 2 grams of sample into a previously dried and tared weighing bottle or aluminum dish(to nearest 0.001 g), and spay it evenly. The dish and content shall be placed in an oven for 1 hour at 100-105℃. Finally the dish and content shall be removed, cooled in a desiccator for 30 minutes and weighed.

$$\frac{\text{wet weight-dry weight}}{\text{wet weight}} = \%\text{Volatile content}$$

VISCOSITY OF NC SOLUTION

Principle:
This method uses the Brookfield DV-II instrument for measuring the viscosity of NC solution.
Procedure:
Place the level of rotational viscometer in horizontal position
Set the instrument to self-check, then to test condition, set rotation speed.
Put NC solution into a special container, transfer into a thermostatic water bath for about 30 minutes at a setting temperature, ensure that the solution is free of air bubble by visual inspection.
Put the sample cup under the viscometer, connect the rotor to the joint of rotation viscometer, tighten the fixing screws, adjust the knob of lifting height of the viscometer until the solution reaches the marking line of rotor shaft.
Turn on the power, let it rotates, keep torque percentage readings are in the range of 30%-70%. Keep rotation for 2-3 minutes, read and record.

SOLID CONTENT OF NC SOLUTION

Principle:
Dry a certain amount of sample at a certain temperature,determine its mass loss
Procedure:
Drip 1g-2g NC solution in a clean constant weight dish, ensure that the sample is evenly dispersed in the dish, dry for 1h at 105℃(drying temperature and period may conform to the customer requirements), cool in a desiccator for 30min and weigh.
M1, M2 and M3 shall be nearest 0. 1mg.
Calculate the solid content, as follows:

$$V = \frac{M_3 - M_1}{M_2 - M_1} \times 100\%$$

Where: V--Solid content,as mass ratio(%);
M1--weighing dish before drying, in gram(g);
M2-weighing dish and the sample before drying, in gram (g)
M3--weighing dish and the sample after drying, in gram(g)
Each sample take two parallel results, the D-value of the parallel results shall be no greater than 1.5%, take the arithmetic mean, to the nearest 0.01%.

2.1.4 PACKAGE

Package of NC product conforms to"International Marine Dangerous Goods Code" and"Recommendations on the Transport of Dangerous Goods Model Regulations " Special package shall be confirmed by negotiations.

•Package types
(liner: Anti-static polythene film bag)

• Carton Box

• Fiber drum

Dimensions and Packing Volumes

Item	Carton Box	Fiber Drum	
Dimensions (mm)	350X350X450	Φ570X900	Φ420X750
Net Weight (Kg)	20-25	70-130	30-50
Tare(Kg)	1.5±0.1	8.8±0.2	5.2±0.2
Pieces/pallet	18	4	——
Pieces/20'FCL	360	80	240
Pieces/40'FCL	720	160 (168 without pallet)	405 (480 without pallet)

2.2 NC chips Introduction

NC chips is manufactured from Nitrocellulose through processes of plasticizing, pressing, slicing and drying. It is a specific form of nitrocellulose containing a plasticizer such as dibutyl phthalate (DBP), epoxidized soybean oil (ESO) or acetyl tributyl citrate (ATBC).

Features and Usage

1)NC chips is With features of high gloss, little dust, easy storage and stable quality.

2)NC chips containing ATBC, ESO does no harm to environment since the plasticizer is stable and environment friendly without toxic phthaleins ester.

3)NC-Chips with DBP, ESO as its plasticizer is mainly used for wood and industrial coatings. NC-Chips with ATBC is used mainly in the production of printing inks which contain only ethyl acetate as the solvent.

TDS

Item		Unit	Index	Test Method
Nitrogen CON.	L	%	10.7~11.4	
	H	%	11.5~12.2	
Nitrocellulose		%	Remainder	
Plasticizer CON	DBP	%	19±1·0	(The enterprise internal method)
	Or ATBC			
	Or ESO			
Ignition point		℃	⩾170	WJ9028-05 4.5.9
80℃ Thermal-resistance Test		Min.	⩾10	WJ9028-05 4.5.8
Acidity (as H2SO4)		%	⩽0.08	WJ9028-05 4.5.7

Viscosity

Type	sec	A法	B法	C法
L	1/8	—	—	1.7~2.8
	1/4	—	—	3.1~8.0
	1/2		3.0~6.0	
H	1/16	—	—	1.1~1.6
	1/8	—	—	1.7~2.8
	1/4	—	—	3.1~8.0
	1/2a	—	3.0~6.0	—
	1	—	8.5~16.0	—
	5	4.0~7.5	—	—
	10	8~15	—	—
	20	16~25	—	—
	30	26~35		
	40	36~50	—	—
	60	51~70	—	—
	80	71~100	—	—

Package and Weight

Outer Packing: Fiber drums
Inner packing: Anti-static plastic bag.

Grade	Fiber drum (KG/drum)	
1/8	200L	120kg
	100L	50 kg
1/4	200L	110kg
	100L	45 kg
1/2	200L	105kg
	100L	45 kg
High Viscosity	200L	90kg
	100L	35 kg

	Container	With Pallets	Without Pallets
100L Fiber Drum 420*750mm	40FCL	405drums	492 drums
	20FCL	/	240drums
200L Fiber Drum 570*900mm	40FCL	160 drums	168drums
	20FCL	80 drums	80 drums

Classification

Nitrocellulose and Nitrocellulose chips are classified into class 4.1 dangerous chemicals according to the "list of dangerous goods" of the People's Republic of China.

According to the United Nations "Recommendations on the transport of dangerous goods", NC chips' UN no. is 2557.

SNC produces high-qualilty NC chips with advanced technology and self-produced good quality nitrocellulose. Besides keeping the excellent character of NC, NC chips also has the characteristics such as easy flow, less moisture and safety in use. NCIC' NC chips sells to many countries and regions all over the world, such as UAE, Jordan, Egypt, Turkey, the United States, Australia and so on.

2.3 Nitrocellulose deep-processing products

Nitrocellulose for fireworks is mainly used in the cold light fireworks industry, such as stage fireworks, cake fireworks, handheld fireworks, toy fireworks, etc. The appearance is in powder form, with a particle size of about 100 mesh, high bulk density, good flowability, stable quality, and safety performance, which has passed the testing of Hunan Fireworks and Firecrackers Product Safety Quality Inspection Center.

Quality indicators for fireworks nitrocellulose

NO	Item	Technical indicators
1	Nitrogen content，%	12.2 ~ 12.6
2	Bulk density (dry weight)，g/cm³	0.4 ~ 0.7
3	Stabilizer content(dry weight)，%	0.7 ~ 1.5
4	134.5℃Methyl Violet Chemical Stability Test	≥40min，and not ignite or explode within 5 hours
5	Ignition point，℃	≥170
6	Particle size，%	60 ~ 100mesh≥80%
7	Volatile content分，%	25 ~ 35

Launching propellants used nitrocellulose is mainly used for the preparation and assembly of propellant tablets into shoot nail products, and is widely used in indoor decoration.Its appearance is granular, with a particle size of 20-50 mesh. It has a high bulk density, good flowability, and safety, meeting the production and application requirements for subsequent tablets preparation.

APPLICATION

3.1 APPLICATION FIELDS

Nitro paint has many advantages such as easy construction
fast drying, good flowing property, good adhesion and smooth bright appearance. Nitro paint film has good strength and weathering resistance, good property on pigment dispersion, and it also can promote the solvent diffusion in the coatings.

Application fields	TYPE L			TYPE H									
	L1/32 L1/16 L1/8	L1/4	L1	H1/16 H1/32	H1/8	H1/4a	H1/4b	H1/4c	H1/2	H1	H5	H20	H80	H120
Wood Coatings														
Primer						▲	▲	▲	▲					
Edge sealer				▲	▲	▲	▲	▲	▲	▲	▲			
Matte varnish		▲					▲	▲	▲					
Polish	▲	▲				▲	▲	▲	▲	▲				
Dip coatings				▲	▲	▲	▲	▲	▲	▲	▲	▲		
Sealing coatings						▲	▲	▲	▲	▲	▲			
Floor coatings						▲	▲	▲	▲	▲				
Fillers								▲	▲	▲				
Printing ink														
Flexo printing ink	▲	▲	▲	▲	▲	▲	▲	▲	▲					
Gravure	▲	▲	▲	▲	▲	▲	▲	▲	▲					
Metal coating														
Zapon lacquers							▲	▲	▲	▲	▲	▲	▲	
Coating for staples							▲	▲	▲	▲				
Primer							▲	▲	▲	▲				

Application fields	TYPE L			TYPE H										
	L1/32 L1/16 L1/8	L1/4	L1	H1/16 H1/32	H1/8	H1/4a	H1/4b	H1/4c	H1/2	H1	H5	H20	H80	H120
Fillers				▲	▲		▲	▲	▲					
Automobile (repair)coatings				▲		▲	▲	▲	▲	▲				
Paper coatings														
Coating for paper	▲	▲				▲	▲	▲	▲	▲	▲			
Coatings for calendering						▲		▲	▲	▲	▲			
Leather coatings														
Protective coatings												▲	▲	
Pigment base coatings												▲	▲	
Split hide coatings								▲		▲	▲			
Base coatings											▲	▲		
Aqueous emulsions								▲	▲	▲	▲	▲	▲	▲
Effect coatings														
Multicolor coatings					▲		▲	▲		▲	▲	▲		
Hammer finishes							▲							
Crackle finishes				▲			▲					▲		
Others														
Nail polish						▲		▲						
Adhesives							▲	▲		▲	▲	▲	▲	
Electric bulb lacquers											▲	▲	▲	▲
Glass coatings							▲				▲	▲		

3.2 TYPICAL APPLICATION FORMULA

WOOD COATINGS

Item	Percent by weight(%)
NC H1/4	16.0
ED-30 or SD-530	0.2
BYK-300	40.3
MW-1135	17.0
314 thinner	3.0
301 resin paint	1.5
Coconut alkyd resin	20.0
Dioctyl phthalate (DOP)	2.0

AUTOMOTIVE REFINISHING PAINT

Item	Percent by weight(%)
NC H1/4	20.50
422 resin	15.50
314 thinner	46.35
BYK-141	0.15
Zinc stearate	4.00
Synthetic fatty acid resin	11.50
Dioctyl phthalate (DOP)or Environment-friendly plasticizer	2.00

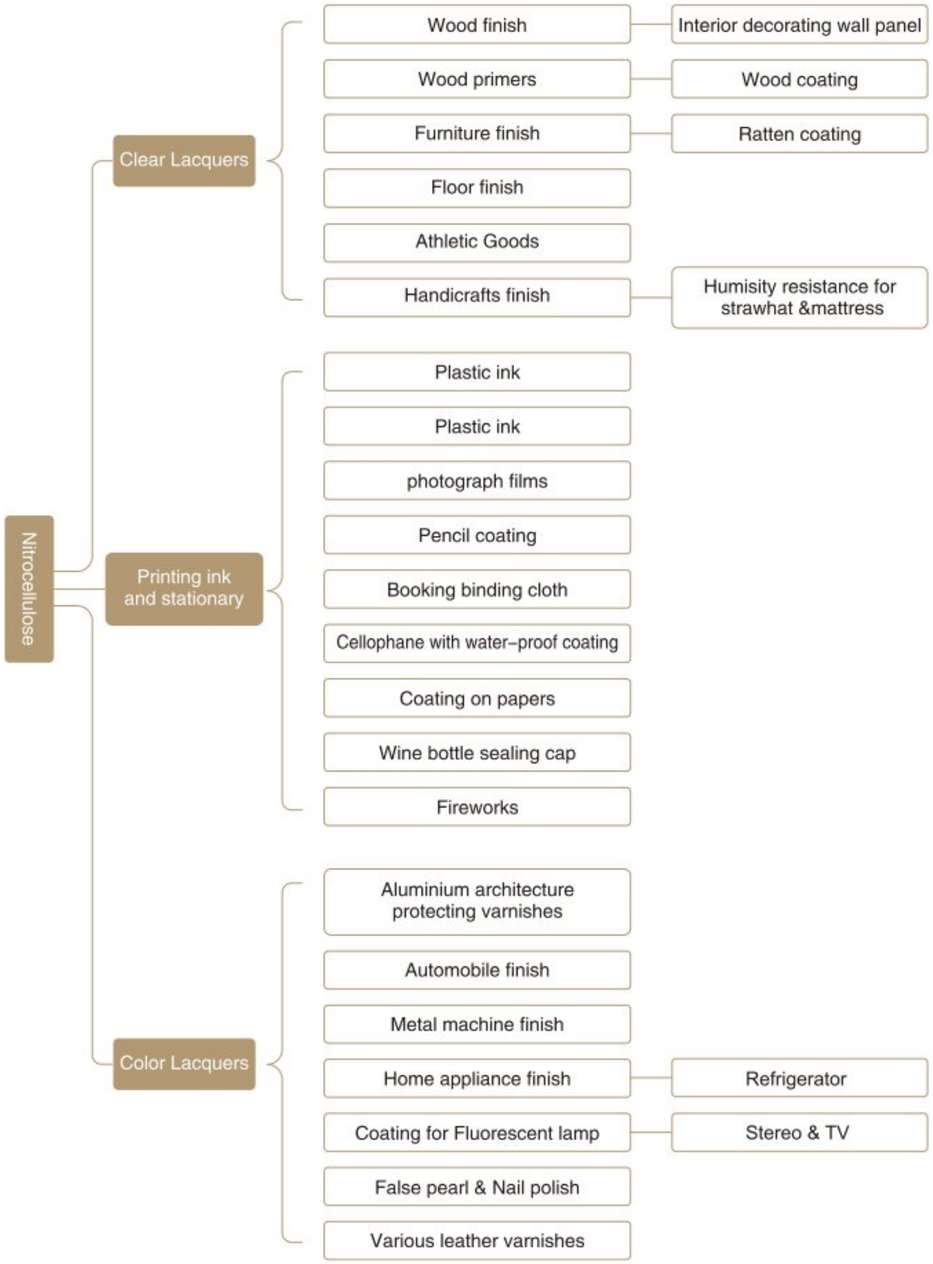
THINNER PREPARATION:

Item	Percent by weight(%)
Ethanol	5
Iso-butyl	10-15
Ethyl acetate	15
Butyl acetate	15
Toluene	20
Acetone	5-10
Dimethylbenzene	20

(3)PRINTING INKS

Item	Percent by weight(%)
NC H1/2(islpropanol)	8.5
Pigment	25.0
Ethanol	13.5
Butanol	1.5
Ethyl acetate	38.0
Butyl acetate	1.5
Agaropectin or maleic resin adhesive	12

3.3 General Application Of Netro-cellulose



3.4 Q&A

(1)How to adjust the fragile paint film?

Add plasticizers or resins. The resin mainly means alkyd and BCD

(2)How to adjust the soft paint film?

Add Alkyd resin or amino resin to adjust. Increase the ratio of low viscosity NC or Maleic Resin.

(3)How to speed up the film-forming?

Drying speed is mainly influenced by the volatility and retention of solvent.as well as property of resins in the formula. Adjust it by changing solvent formula, resin types, dosage and so on. e.g.: Choose the alkyd with short oil Length, Increase the percentage of NC: Decrease the percentage of slow drying solvent, Decrease the percentage of plasticizer, Increase the percentage of Maleic Resin.

(4)What causes paint yellowing and containers rusting?

The paint yellowing might due to the NC turning yellow or being effected by the other resins in the paint formula, it could be improved by adding antiyellowing agents. About the rusting of containers, it is mainly determined by the solvent acidity and the quality of internal coating.Additionally, over time storage or improper inner surface treatment of the containers, high moisture content and high acidity of solvent might also cause rusting.

(5)How to accelerate NC dissolving?

Before the NC dissolving use diluent(e.g.Xylene) to wet it first, then add alcohol.followed by ether, ketones or esters, and at last add quick-drying main solvents.Mix the solvents at the beginning, then add the NC slowly into the mixed solvents step, avoid adding in one time.

NC SAFETY INFORMATION

Transportation, storage, usage, firefighting and disposal of NC shall be in accordance with relevant national or local laws and regulations.
Major information about safety is listed as bellows with the detailed content in MSDS

4.1 PRECAUTIONS

4.2 PRECAUTIONS

Shall not be stored with strong acid. strong alkaline, amine and oxidant.Keep away from heat including direct sunlight, flame or any source of ignition

4.3FIRE-FIGHTING

Water is the only effective agent for extinguishing burning nitrocellulose. The availability of water in sufficient quantities must be ensured. Unsuitable: foam, sand,CO□ and dry powder extinguisher.
We recommend that auto-spraying water system should be installed in warehouse. When NC burns in the presence of excess oxygen, only water, nitrogen and carbon dioxide are produced. However, where there is insufficient oxygen, NO and CO may be given off.

Fire-fighters must work from the side wind coming from. They should be equipped withself-contained breathing apparatus to protect against potentially toxic and irritating fumes. Wear protective equipment, pay attention to sudden blasting event, use nonsparking tools.

4.4 ACCIDENTAL RELEASE MEASURES

EMERGENCY TREATMENT

Avoid sources of ignition.
Ensure adequate ventilation.
Wet NC with water, and then burn it at suitable places.
Wear suitable protective equipment/clothing such as Self-contained breathing apparatus, antistatic work clothing.
Avoid eye contact, skin contact and inhalation of toxic gas.

ENVIRONMENT PRECAUTIONS

Spilled NC must be wetted by plenty of water and transfered into the tank or special collector, and to the treatment plants for disposal in accordance with Disposal Method.

Use non-sparkling tools.

NC SAFETY INFORMATION

4.5 HANDLING AND STORAGE

HANDLING
Ensure adequate ventilation
Operators must receive special training to strictly follow the safety operation procedure.
No smoking, and keep away from flame, heat, shock, Impact, friction, sparks static electricity.
Tools used should be non-ferrous materials such as copper, brass or wood. Tools made of plastic.

material must not be used because of their tendency to produce static electricity.
Make sure that the inner PE bag is grounded when dumping NC.
Do not take the inner PE bag out of the outer wrappage.
Equipped with corresponding varieties and number of fire-fighting equipment and emergency.

treatment equipment.
STORAGE
The storage should be in accordance with national and local environmental regulations.
Stored in cool and well ventilated places.
Keep containers closed. Recommended storage temperature is under 35℃, the maximum.

storage temperature should not exceed 40℃.
Keep away from heat including direct sunlight, flame or any source of ignition.
Do not smoke in the storage area.
Keep apart from acid, alkali, amine, oxidant and flammable liquid.
Mechanical equipment and tools which produce sparks are prohibited.
Storage areas shall be provided with suitable materials.
The warehouse should have static grounding device.
NC should be use up within 1 year (not exceed 2 years) since the production date.

4.6 DISPOSALS

Waste NC shall be disposed after dissolving.
Keep away from flame, heat and spark.
No welding and cutting work around the containers.
PE inner bags should be disposed as noxious substance .
External packing shall be reused or disposed based on actual situation.

NORMS COMPARISION

H Type

EN	CHINA NCIC	THAILAND NCI	AMERICA HERCULES	GERMANY WOLFF	GERMANY HAGEDOM
1E					
2 E	H1500				
3 E			RS1300	E1440	H4
4 E	H800		RS800		
5 E	H300		RS300		
6 E	H120		RS150	E1250	
7 E	H80		RS75	E1160	H7
8 E	H30	DHM10/15	RS35		
9 E	H20	DHM10/25		E950	H9
10 E			RS15		
11 E		DHL120/170			
12 E	H5			E840	H12
13 E		DHL25/45	RS5		
14 E					
15 E				E730	H15
16 E					
17 E					
18 E					
19 E					
20 E	H1				
21 E	H1/2b	DHX40/70	RS3/4		
22 E	H1/2a		RS1/2	E560	H22
23 E		DHX30/50			
24 E	H1/4c				H24
25 E	H1/4b	DHX20/35	RS3/8	E510	
26 E	H1/4a				
27 E				E400	H27
28 E		DHX8/13	RS1/4		
29 E	H1/8b				
30 E			RS30cps		H30
31 E	H1/8a	DHX5/10		E375	
32 E					
33 E	H1/16		RS20cps		H33
34 E		DHX3/5		E330	
35 E					
36 E					
37 E	H1/32		RS10cps		
38 E		DHX1/2			

NORMS COMPARISION

L Type

EN	CHINA NCIC	THAILAND NCI	AMERICA HERCULES	GERMANY WOLFF	GERMANY HAGEDOM
7A					
8A					
9A					
10A					
11A					
12A					
13A					
14A					
15A		DLL25/40	SS5	A700	AH15
16A					
17A					
18A					
19A					
20A					
21A					
22A	L1/2b				AH22
23A	L1/2a	DLX30/50	SS1/2	A600	
24A					
25A					
26A	L1/4b				
27A	L1/4a		SS1/4	A500	AH25
28A					
29A					
30A	L1/8	DLX8/13	SS30CPS	A400	AH28
31A		DLX5/10		A375	
32A		DLX5/8	SS20CPS		
33A	L1/16		SS15CPS	A300	
34A	L1/32	DLX3/5			
35A					

NORMS COMPARISION

M Type

EN	CHINA NCIC	THAILAND NCI	AMERICA HERCULES	GERMANY WOLFF	GERMANY HAGEDOM
7M					
8M					
9M					
10M					
11M					
12M					
13M					
14M					
15M					
16M					
17M					
18M					
19M					
20M					
21M					
22M	M1/2b				
23M	M1/2a				
24M					
25M					
26M	M1/4b				
27M	M1/4a				
28M					
29M					
30M	M1/8				
31M					
32M					
33M	M1/16				
34M	M1/32				
35M					