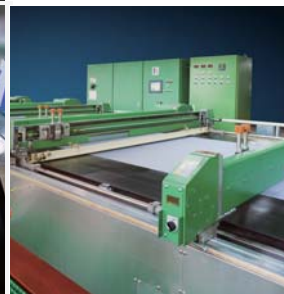
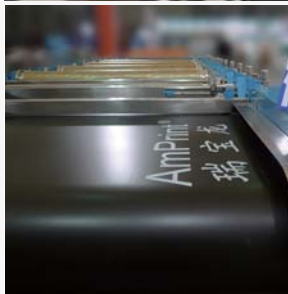


Printing Blanket · Technical Manual



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Product Application >>>





Established in 2006, Highten has been specialized in the business related to RAPPLON brand. Its products mainly include: printing blankets, light duty conveyor belts and driving belts, which are widely applied in various production industries, such as printing and dyeing, machinery manufacturing, automobile, textile, logistics, printing and paper, packaging, food and printing industry, etc.

Resorting on its talents and industry experience, Highten keeps developing the variety of printing belts in order to meet various customer demands. Therefore, RAPPLON's products will always satisfy you no matter what product you are looking for.

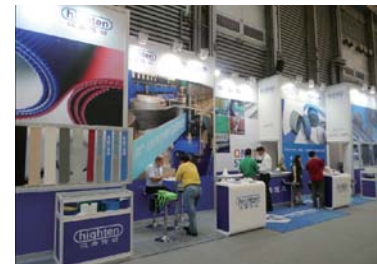
“Be the most suitable one other than the most expensive one” – this is exactly Highten's service tenet.



Exhibition Style >>>



ITMA ASIA + CITME 2012 in Shanghai, China



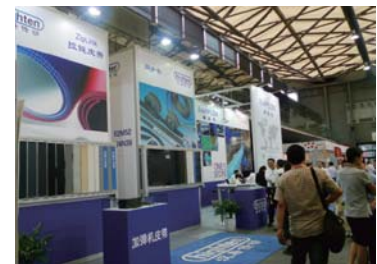
ITMA ASIA + CITME 2014 in Shanghai, China



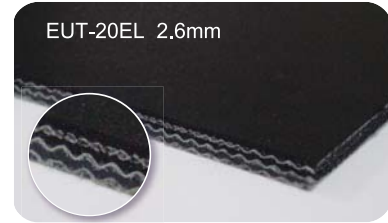
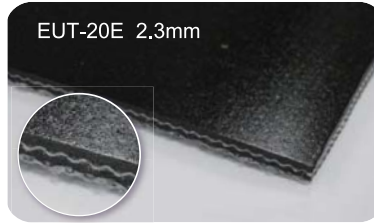
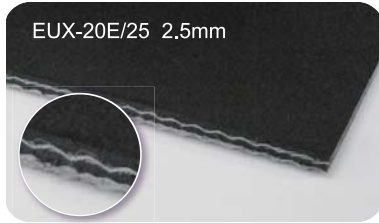
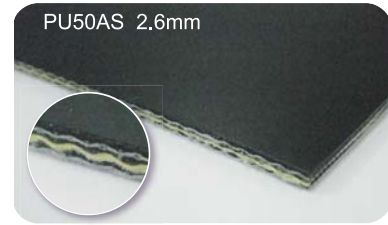
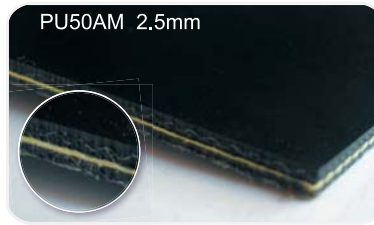
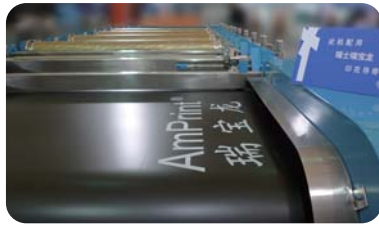
SHANGHAI TEX 2013 in Shanghai, China



SHANGHAI TEX 2015 in Shanghai, China



Normal RAPPLON printing blanket



Product Model		RAPPLON® Standard Printing Blanket				
		PU50AM	PU50AS	EUX-20E/25	EUT-20E	EUT-20EL
Main Technical Parameters						
Thickness	mm	2.5	2.6	2.5	2.3	2.6
Thickness tolerance	mm	±0.05	±0.05	±0.05	±0.05	±0.05
Hardness	°ShA	92	92	92	92	92
Weight	(KG/M²)	2.8	2.9	2.8	2.6	2.9
Conveying side		Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane
Traction layer		Aramide	Kevlar	Polyester fabric	Polyester fabric	Polyester fabric
Running side		Polyester fabric	Polyester fabric	Polyester fabric	Polyester fabric	Polyester fabric
Number of fabrics		3	3	2	2	3
Minimum pulley diameter	(mm)	100	100	80	80	100
Tensile for forcing 1% elongation	(N/mm)	50	50	18	15	15
Continuous working temperature	°C	-15/+80	-15/+80	-15/+80	-15/+80	-15/+80
Maximum production width	(mm)	3200	3000	3200	3200	3200
Recommended elongation at fitting	(%)	0.2-0.5	0.2-0.5	0.3-0.8	0.3-0.8	0.3-0.8
Antistatic		yes	yes	yes	yes	yes
Product Features Applicable To						
Features applicable to		- Flat-bed printing machines	- Flat-bed printing machines - Magnetic rotary printing machines with more than 15M - Digital printing	- Rotary printing machines - Digital printing - Flat-bed machines with clamp propulsion system	- Magnetic rotary printing machines	- Rotary printing machine - Rotary printing machines with gang drive - Flat-bed machines with clamp propulsion system - Digital printing

New generation aramid printing blanket: PU4000

High elasticity

- Surface texture approximate to rubberbelt
- Especially applicable to textile printing for its excellent elastic recovery performance
- Good chemical resistance to resist pigments, dyestuffs and washing solvents during printing.

- ◆ Rubber-like surface elasticity
- ◆ Polyurethane belts with "no joint"
- ◆ Longer service life

"No joint" and free from maintenance

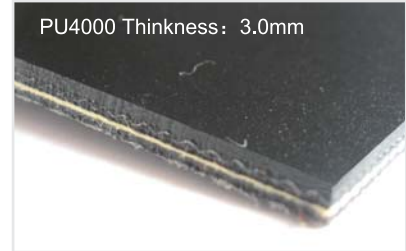
- "No joint" effect makes the service life of interface twice as long as normal interface and free from maintenance.

Long service life

- Longer overall service life

Recommended for: silk printing

Combined advantages of rubber and polyurethane

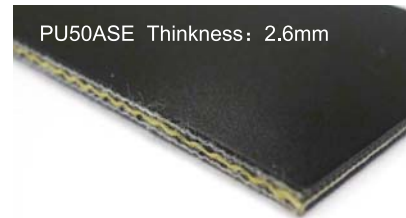


High-temperature resistance printing blanket: PU50ASE

High temperature resistance

- Maximum operating temperature up to 90 °C
- Maximum production width: 3200mm

Recommended for: flocking equipment



High strength printing blanket: PU36EM

High tension strength

- Tension Strength: 25N/mm, twice of the strength of normal polyester printing blankets

Recommended for: Flat-bed printing machine rotary printing machines with more than 16 printing stations

High wearability

- ◆ Help you realize perfect print matching!
- ◆ Reduce your blanket adjustment frequency and shutdown loss!

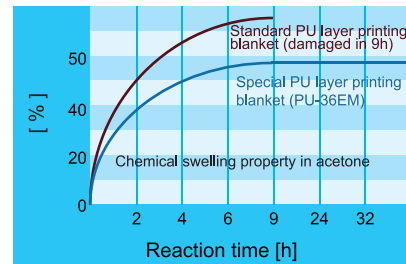
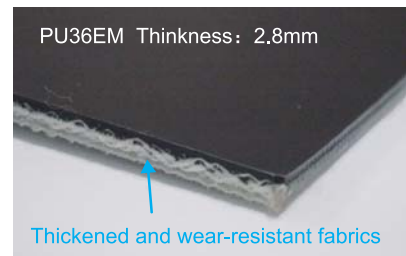
- Special bottom structure leads to higher wearability
- Fully sealed edges make it water proof, wear resistant and serve longer

Recommended for:
Bottom wear: Applicable to open magnetic printing machines
Edge wear: Flat-bed printing machines with clamping systems (such as Busher)

Corrosion resistant
 Chemical resistant solvent

- Specially developed polyurethane surface can contact acetone and other ketones solvents temporarily

Recommended to use in: Printing industry with strong corrosivity



Super wear-resistant blanket: PU50AE

High tension strength

- Strength: 50N/mm, 4 times as strong as normal polyester printing blanket

High wearability

- More durable edges and bottoms, super wear-resistant black bottom

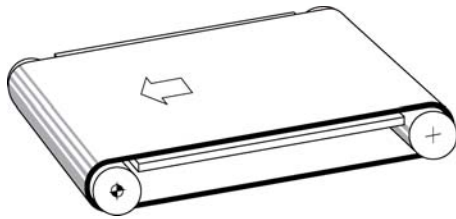
Magnetic printing blanket

- Maximum production width: 4200mm

Recommended for: Magnetic printing machines

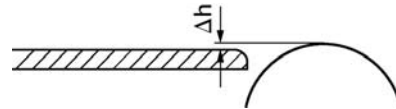


Platen design

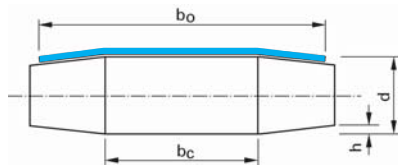


- ◆ The platen surface must be lower than the surface of roller wheel and roller shaft; edge corners of the platen must be rounded off!
- ◆ Belt correction and its service life are depending on the cleanness of platen surface.
- ◆ Moisture between the platen and blanket may lead to extra adhesion (absorption effect), and thus result in higher energy consumption or overload. Therefore, the friction between platen and the bottom fabric of blanket should be reduced to avoid it.

- ◆ Material of platen can be pickled steel plate, stainless steel sheet, hard plastic board or hard wooden board, etc.



Roller design for flat-bed printing machine



- ◆ $b_c = \frac{b_o}{2}$ for $b_o \leq 2000$ mm
- ◆ $b_c = b_o - 1000$ for $b_o > 2000$ mm
- ◆ $h \approx 1.3 \sim 1.6$ mm

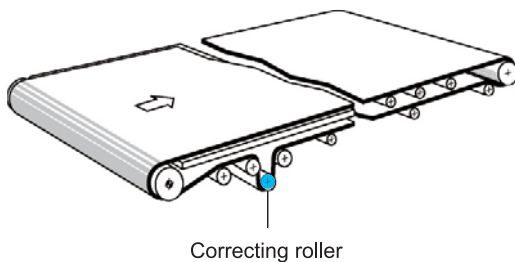
- ◆ Other tail wheels, pressure wheels, guide wheels and tension wheels are usually designed into cylinder shape.



- ◆ Higher roller crown (H) may lead to: Correction effect loss caused by the contact failure of belt and cone.



Correcting roller design



For effective correction, design of the correcting roller (as shown in the figure) of flat-bed printing machine should focus on the following 2 points:

- ◆ 1. Realization of moving up and down or left and right
- ◆ 2. Wrap angle of about 180 °C

Delivery package specification



- ◆ Wrap a thin film externally before packaging;



- ◆ Cover a vacuum pressure-proof bag outside the thin film that wraps the blanket up;



- ◆ Diameter of paper tube for blankets should be 180mm~200mm; the three paper tubes should be tied tightly; the width of paper tube should be 15cm larger than blanket width;



- ◆ There are bumper foam boards on 6 sides of the wooden box; after packaging is finished, place two belts on the boards so that customers can pull it out easily;

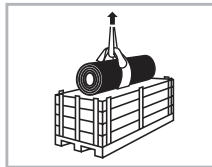


- ◆ There are desiccant, silica powder and instruction manual for printing blanket inside the inner box.

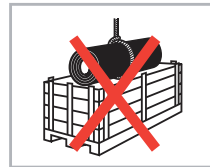
Installation of printing blankets



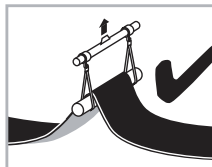
★ General precautions:



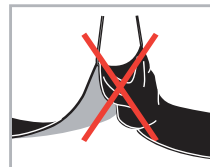
- ◆ Use only appropriate hoisting gear to remove the blanket from its package.



- ◆ Do not remove printing blanket with an individual, unpadded rope.



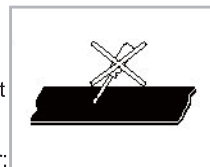
- ◆ Do not curl or make the blanket contact with sharp-edged objects; do not step on it to avoid dirt.



★ Please contact the printing blanket service center of Highten if you encounter any problems during installation and adjustment.



- ◆ Do not crush or buckle the printing blanket;
- ◆ Do not place the blanket on belt edges;
- ◆ Do not pull it across floor;



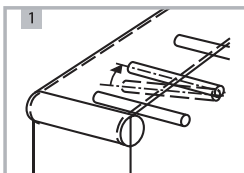
- ◆ Any contact of the printing blanket with pointed, cutting or sharp-edged objects must be avoided.



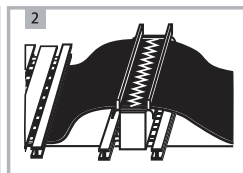
- ◆ Store printing blankets in their original packaging protected from sunlight/light in a cool and dry place. Storage of printing blankets should not exceed two years at above conditions!



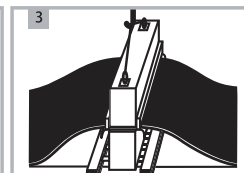
Field installation of printing blanket



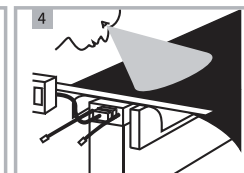
- ◆ Align the roller wheel with the edge of covered part



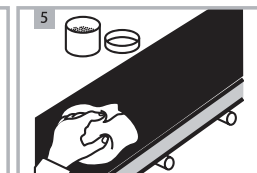
- ◆ Press to join two ends for preparation



- ◆ Operate heat pressing according to Highten's datasheet

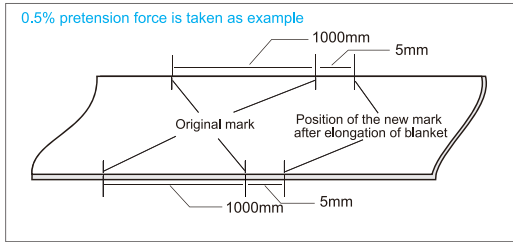


- ◆ Inspect joints



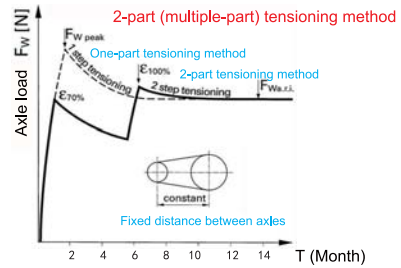
- ◆ Clean the surface of printing blanket with soap, water and silica powder

Printing blanket tensioning



Special: The pretension force of aramid printing blankets should be within 0.2%~0.5%, and not exceed 0.8% at maximum.

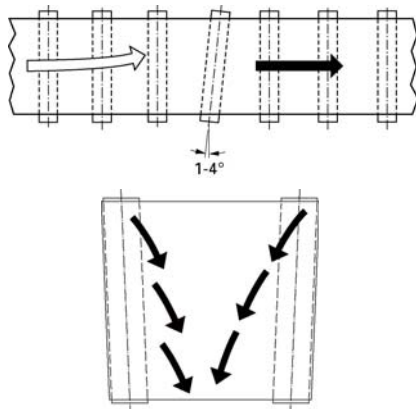
- ◆ Pretension force application method: Place two measuring marks 1000mm apart on either side of the printing blanket, and then tension the printing blanket with the tensioning device on the machine to achieve the intended extension (pretension force). It should be noted that there should be no tension before operate tensioning device.



★ Use multiple-part tensioning method:

- ◆ This method is suitable for the structural elongation of aramid printing blanket and prevention of delaminated edges of blanket;
- ◆ By this method, the axle load can be reduced and service life of the machine can be extended.

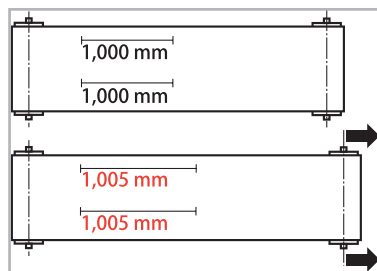
Suggestions for flat-bed blanket debugging



★ Support roller adjustment:

Note: Before installation, the support roller must be confirmed being vertical to the operation direction of printing blanket!

Note: Cylinder roller wheel may easily lead to belt deviation as belt moves towards the direction with lower tensile force due to inertia. Therefore, belt correction should be paid attention to in design.

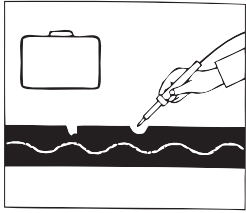


★ Debugging suggestions:

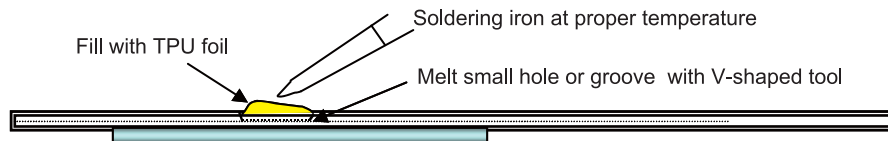
- ◆ 1. Debugging of printing blankets should be started after blanket interfacing is completed for 12h in order to ensure the service life of interface.
- ◆ 2. Before lower speed operation of the machine, the printing blanket should be placed in the middle of the machine, tensioning line should be marked and the blanket should be confirmed with no sundries inside during debugging.
- ◆ 3. After the blanket starts to operate stably, the tensioning force can be increased gradually; in general, operation continue safter the tensile force of aramid printing blanket reaches 0.3%~0.5%. Moreover, pay attention to see if the blanket is deviated.
- ◆ 4. It is suggested to operate the printing blanket continuously in the first 48h. Long time shutdown is not allowed.
- ◆ 5. After the printing blanket starts to run stably, measure the longitudinal and transverse precision, and then start edge cutting.

Printing blanket maintenance

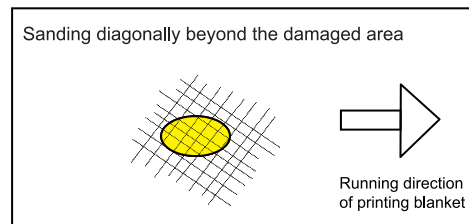
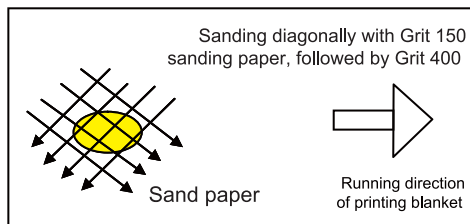
■ Repair of slot or holes on printing blanket surface:



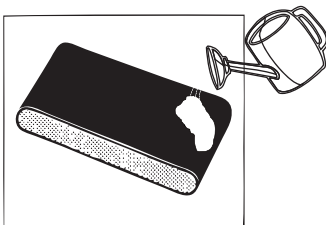
- ◆ Fill with TPU foil:
 - Set the soldering iron at proper temperature;
 - Fill in the TPU meltable foil little by little to cover the cavity area;
 - The filling must be free from trapped air bubbles;
 - Continue filling till it is above the printing blanket level;
 - Cool down with cooling spray before sanding;
 - Polish with polisher.



- ◆ Sanding method:
 - Similar sanding with grade 400, till the surface is smooth by running your finger tip over sanded area
 - Repeat the process if necessary till desired result has been achieved.

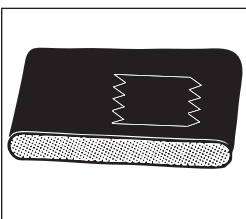


■ Wrinkle repair of printing blanket:



- ◆ - The wrinkle surface must be operated to the center of big roller wheel; place several layers of cotton cloths, the thickness of which is up to 2 to 3mm, on the wrinkle range; fix the probe of temperature detector on the wrinkle area with adhesive, so as to control temperature in later processing. If necessary, fix a piece of cloth on the wrinkle part with adhesive.
 - Pour hot water of 80℃~90℃ on cloths for continuously 25min, and observe temperature detector to keep temperature not higher than 70℃. Then, cool it down.
 - Observe if the wrinkle disappeared when cloths are cooled down, and then move the damaged area away from the big roller wheel.
 - If the blanket is still wrinkle, repeat the actions above.

■ Repair with insert:



- ◆ The followings should be paid special attention to if new materials will be used for repair:
 - Placing of a piece of new printing blanket will affect precision negatively as the neutral layer of new and old printing blankets cannot be completely the same.
 - Performance of the TPU surface melted in the new printing blanket is different from the old (original)printing blanket.
 - Since repair work is accompanied with predictable risks, precision of the repaired printing blanket cannot be ensured.

Edge tying repair of printing blanket



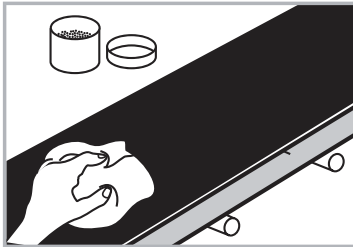
■ Repair of delaminated printing blanket and printing blanket with damaged edges

In application, printing blankets may be delaminated in their length direction or damaged on their edges due to their own quality problem or blanket deviation. In these cases, edges can be tied again to solve problem and lengthen its service life.

■ Printing blanket widening

Printing blanket widening service can be provided when the printing range is met, it is preferred to widen both sides of the blanket at the same time to ensure accuracy.

Maintenance notices of printing blanket



- ◆ Firstly, clean blanket surface completely: For the purpose of achieving best repair effect, please clean blanket surface completely in advance. The cleaning area should be 100mm larger than the area of printing blanket contacting with the heating machine. Resin must be removed firstly before cleaning blanket surface if there is. Since PU blankets should be repaired in the principle of thermal thawing first and cooling second, the cleanness of the part to be repaired will affect the repair effect directly. Furthermore, please pay attention to the 100mm area, which is the buffer zone for blanket with temperature caused by heating machine.
- ◆ Confirm the type and batch No. of your printing blanket: blankets of different brands should be repaired with different repair materials. Repair of printing blankets of the same brand and type differs for different batch number or year of manufacturing; therefore, please provide blanket model and its original information.
- ◆ Service life of remake joint. Since polyurethane printing blankets are manufactured by different means, the PU may get aged after being used for about 3 or 5 years, and the joint may break off. The service life of printing blanket after joint remaking depends on the aging degree of PU. If the surface of a printing blanket becomes yellow and brittle, then it shows that the aging is so serious that the successful ratio of joint remaking is much low. The service life of the blanket left may be only several months. If the printing blanket is slightly aged, and long enough for tooth punching and joint remaking, then the blanket can be used for more than 1 year after repair.

Maintenance tools and auxiliary materials

Maintenance tools



PM400 heating machine



Polisher



Soldering station

Auxiliary materials for maintenance



Silicon paper



Silica powder



PU foil



Adhesives

Printing blanket maintenance



- ◆ Taking care in using any cleaning agent. Before usage, please carry out a test on the belt edge outside the printing area.
 - ◆ Soap water (household cleaner)
 - ◆ Butyl Acetate
 - ◆ Ethyl Acetate
 - ◆ Hydroehloricacid10% (Hydrochloric acid)
 - ◆ Alcohol (Aromatic chemicals < 5%)
- (the contacting time should be shorter than 10min),Rinse offwith plenty of clean water.
★ Try not to contact with edges in order to prevent damages caused by permeation.

★ Cleaning of printing blanket (recommended)

Acetone and low ketones such as methyl ethyl ketone (MEK) are not recommended for cleaning printing blankets!



Chemical resistance of printing blanket

Chemical	Solvent	Suggestions
Ethanol	Methyl alcohol	Recommended
	Ethyl hexanol	
	Isopropyl alcohol	
Ester	butyl acetate	Recommended
	Ethyl acetate	
Aromatic	Benzene	It can be used, but it can only contact with the surface of printing blanket for limited time (up to 1min)
	Toluene	
	Xylene	
Fatty group	Ethane	It can be used, but it can only contact with the surface of printing blanket for limited time (up to 1min)
	Cyclohexane	
Alkone	Acetone	Not recommended
	Methyl ethyl ketone (MEK)	
Carbon and hydrogen chloride	Methyl chloride	Not recommended
	(Single) chlorobenzene	
	Chloroform	
	Trichloroethane	
	Trichlorethane	
Ether	Ethyl ether	Not recommended
	Tetrahydrofuran (THF)	

Service Hotline: 4001806599

Shanghai : 0 2 1-6221 6599
Qingdao : 0532-8612 1828
Yancheng : 0515-8831 0879
Wenzhou : 0577-8838 6120
Shenyang : 0 2 4-8561 1975
Guangdong : 0757-8258 9060
Shaoxing : 0575-8116 4300
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