Syntor Fine Chemicals Limited Company Profile

Syntor Fine Chemicals Ltd specialises in the development and manufacture of Fine Chemicals, Intermediates and speciality products.

Syntor has a strong product list that is supplied into the following industries:

- Pharmaceutical
- Agrochemical
- Electronic
- Polymer
- Aroma
- Surface coatings

Processes are developed by Syntor from our UK laboratory, providing a fully managed service tailored to companies to our customers requirements. We can offer small-scale process development, multi-stage synthesis, through to large scale commercial manufacture.

Syntor utilises production facilities in the UK, China and India to ensure the most competitive manufacturing option is available to our customers.

The majority of products are held in stock at our UK facility, allowing Syntor to offer short lead times for material supply. Our main product range includes:

Our main product range includes:

- Acid Chlorides
- Chloroalkylamines
- Friedel-Craft derivatives
- Cyclopropyl derivatives.
- Speciality Acrylate/methacrylate monomers
- Diallylamide based uv activated adhesion promoters

Syntor can offer a range of services to our customers. These include:

- Process Development
- Custom Synthesis
- Kilo to multi-tonne scale manufacture
- Toll manufacture
- R&D laboratory, Pilot Plant, and Commercial scale manufacturing facilities
- Highly qualified Technical expertise/support

Quality Control:

- UK testing and approval of product prior to despatch
- Wide range of QC analysis equipment (GC, HPLC, GC-MS, IR spectroscopy)
- ISO9001
- Integrated management systems across all sites

With an expanding product range, and production capability, we can supply a wide range of industry sectors, and develop processes for novel and specialist applications.

syntor fine chemicals

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Manufacturing capabilities:

Multi-purpose facilities offering a range of processing scale and capabilities, across sites in the UK, China and India.

China facility

Equipment outline
24 GL reactors 2,000 to 8,000 litres
5 x 1,000 to 5,000 litre SS reactor
Pilot plant facility
Distillation capabilities upto 45 theoretical plates
Solids handling facility
Dedicated packaging area
High pressure reaction capability
Operating range -20°C to 220°C
On site waste treatment facility
Further expansion available

India facility

Equipment outline
GL reactors 2,000 to 15,000 litres
SS Reactors 1,000 to 3,000 litres
3 x 2000 litre SS Hydrogenation reactors (to 20bar)
4 x 250 litre GL reactors
Fully contained AHU solids handling and packing facilities
Glass lined high vacuum distillation units
Operating range -15°C to 200°C
Centrifuges
Inert lined Filter dryers

Syntor continues to invest in new technology and equipment. In 2014 Syntor will commence manufacturing in a new facility based in Jiangxi province (China). This investment in new manufacturing equipment/capabilities will ensure we can offer greater capacity and reduce lead times to our customers.

The expansion of our manufacturing capacity supports a key strategy for Syntor as we continue to increase our Contract Manufacturing services. Syntor also plans to expand our UK operations.

Syntor offers a range of services from Toll Manufacture, through to Project managed scale-up and technology transfer services.

Syntor can offer a competitive outsourcing solution while ensuring client Intellectual Property is protected.

Syntor can offer:

- Cost effective development and manufacturing options
- Flexible approach
- Develop products for early stage project evaluation, through to commercial supply.
- Provide companies with a reliable second source of commercial key intermediates
- Products stocked and approved at COMAH and temperature controlled storage facilities in the UK

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Winner of Innovation

Innovative Product or Process award 2013

Syntor Fine Chemicals are delighted to have received the Innovation award at this years Chemicals North West awards event held in Manchester on the 10th October 2013.

Pictured above receiving the award: Simon Knowles (Managing Director – Syntor) (centre left), Andrew Freer (Commercial Director – Syntor) (centre right),

The Chemicals North West awards dinner was held at the Imperial War Museum North, Salford Quays, Manchester, England.

The award recognises the successful development and innovations made by local industry, promoting growth, success and collaboration within the region.

The judges commented that "Congratulations were in order to Syntor. This was a tough category with a large number of very high quality entrants. The judges were particularly impressed with the collaborative research activity involving our universities and the construction of multi-product scale-up facilities. Syntor's technology has enabled highly efficient coating of components in highly technical downstream sectors such as automotive and aerospace, with much reduced impact on the environment."

Receiving the award on behalf of Syntor, Andrew Freer (Commercial Director) commented:

"Syntor are delighted to receive the Innovation award in 2013. This awards panel recognises Innovators within the Chemicals industry, and appreciates the importance of developing new markets and application areas to ensure that the industry meets the challenges of changing markets.

Syntor have invested heavily over recent years to identify opportunities within growing markets, and develop technology to offer niche products to a range of international markets. We have integrated ourselves into foreign markets by offering a flexible and adaptive approach to customers requirements and market needs. By embracing manufacturing in Asia, combined with innovative processes, we can offer cost effective solutions that meet the demands of a fast changing industries.

This award is also recognition for team efforts within the company. As we continue to expand our traditional markets (eg. Pharmaceuticals, Agrochemicals), we are also focused on the further development of a range of Speciality products, produced in the UK. Our UK manufacturing expansion will further promote growth within foreign markets, and we are seeking to ensure this facility can be located in the North West. The region has a strong identity and reputation internationally for manufacturing and innovation, and Syntor would like to further enhance the reputation of the North West Chemicals industry.

Syntor's success is attributed to our flexibility, market responsiveness and strong team working to drive innovations, enabling the development of new markets and improving competitiveness".

Pictured above – Award winners of Chemicals North West event

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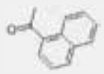
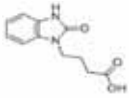
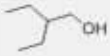
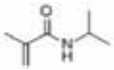
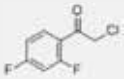
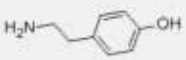
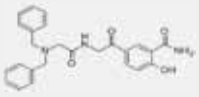
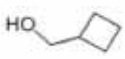
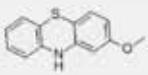
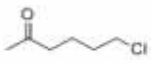
New Products

CAS no.	Product Name	Synonym	Structure	Reactions types involved
941-98-0	**1-Acetylnaphthalene**	1'-Acetonaphthone		**Friedel Crafts Acylation**
3273-68-5	**2,3-Dihydro-2-oxo-1H-benzimidazole-1-butyric acid**	4-(2-oxo-2,3-Dihydrobenzoimidazol-1-yl) Butyric acid, Buzolic acid		**Condensation, Alkylation**
97-95-0	**2-Ethylbutanol**	2-Ethyl-1-Butanol		**Knoevenagel Condensation/Reduction**
13749-61-6	**N-Isopropylmethacrylamide**	"2-methyl-N-(propan-2-yl)prop-2-enamide		**Amide Synthesis**
51336-94-8	**2-Chloro-2',4'-difluoroacetophenone**	2-chloro-1-(2,4-difluorophenyl) ethanone		**Friedel Crafts Acylation, Fluorination**
51336-95-9	**2-Chloro-3',4'-difluoroacetophenone**	2-Chloro-1-(3,4-difluorophenyl)-ethanone		**Friedel Crafts Acylation**
51-67-2	**Tyramine**	p-Hydroxyphenylethylamine		**Hydrogenation / Demethylation**
61439-59-6	**2-(4-Benzyloxyphenyl)ethanol**	p-Benzyloxyphenylethan-2-ol		**Benzylation**
30566-92-8	**5-(N,N-Dibenzyl glycyl)salicylamide**	5-{[Bis-(benzyl)-amino]-acetyl}-salicylamide		**Friedel Crafts Acylation, Amination / Bromination**
4333-56-6	**Cyclopropylbromide**	Bromocyclopropane		**Bromination**
5911-08-0	**Cyclopropyl Methyl Chloride**	(Chloromethyl) cyclopropane		**Chlorination**
4415-82-1	**Cyclobutane methanol**	(Hydroxymethyl)-cyclobutane		**Malonic Ester synthesis, reduction**
1771-18-2	**2-Methoxyphenothiazine**	2-Methoxy-10H-phenothiazine		**Methylation / Phenothiazine Synthesis**
10226-30-9	**1-Chloro-5-hexanone**	6-Chloro-2-Hexanone		**Cyclisation / HCl ring opening**

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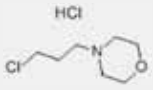
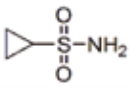
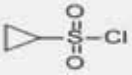
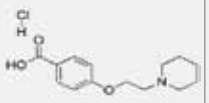
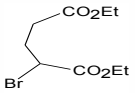
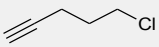
New Products

CAS no.	Product Name	Synonym	Structure	Reactions types involved
57616-74-7	**Chloropropyl morpholine hydrochloride**	4-(3-chloropropyl) morpholinium chloride		**Chloroalkylation**
154350-29-5	**Cyclopropanesulfonamide**	Cyclopropane Sulphonyl Amide		**Amidation**
139631-62-2	**Cyclopropanesulfonyl chloride**	CyclopropylSulfonylChloride		**Cyclopropanation**
6746-94-7	**Cyclopropyl acetylene**	Ethynyl cyclopropane		**Dehydrochlorination**
84449-80-9	**4-(2-Piperidinoethoxy)-benzoic acid hydrochloride**	4-[2-(1-piperidino)ethoxy]benzoic acid hydrochloride		**Chloroalkylation**
7209-00-9	**2-Bromoglutaric acid diethyleste**			**Acid Chloride synthesis / Bromination**
14267-92-6	**5-Chloropentyne**	5-chloro-1-pentyn; 5-chloropent-1-yne; 1-Chloro-4-pentyne;		**Acetylene substitution**

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Chloroalkylamine Hydrochloride Salts

Product Name	Synonyms	CAS no.
Chloroethylamine Hydrochloride (70%) (2CEA-2)	1-Amino-2-chloroethane hydrochloride, 2-Aminoethylchloride hydrochloride, 2-Chloroethanamine hydrochloride, 2-Chloroethylammonium chloride	870-24-6
Bis (2–Chloroethyl) Amine Hydrochloride (BIS 2CEA)	2-Chloro-N-(2-chloroethyl)-ethylamine hydrochloride, 2,2'-Dichlorodiethylamine hydrochloride	821-48-7
Chloroethyl Morpholine Hydrochloride (CEM)	N-(2-Chloroethyl)-morpholine hydrochloride, 1-Chloro-2-morpholinoethane hydrochloride, Morpholinoethyl chloride hydrochloride	3647-69-6
Chloroethyl Piperidine Hydrocloride (CEP)	N-(2-Chloroethyl)-piperidine hydrochloride, 2-Piperidinoethyl chloride hydrochloride	2008-75-5
Chloropropyl Morpholine Hydrochloride (CPM)	3-Morpholinopropyl chloride hydrochloride, N-(3-Chloropropyl)-morpholine hydrochloride	57616-74-7
Dibutylaminopropyl Chloride (DBPC)	N-Butyl-N-(3-chloropropyl)-1-butanamine hydrochloride, 3-(Dibutylamino)-propyl chloride hydrochloride	115555-77-6
Diethylaminoethyl Chloride Hydrochloride (Solid / 65 % Solution) (DEC)	N-(2-Chloroethyl)-diethylamine hydrochloride, 2-Chloro-1-diethylaminoethane hydrochloride, 2-Chloroethyldiethylammonium chloride, 2-(Diethylamino)-ethyl chloride hydrochloride, N,N-Diethyl-2-chloroethylamine hydrochloride	869-24-9
Diisopropylaminoethyl Chloride Hydrochloride (Solid / 65 % Solution) (DIC)	N-(2-Chloroethyl)-diisopropylamine hydrochloride, 2-Chloro-N,N-diisopropylethylamine hydrochloride, 2-Chloroethyldiisopropylammonium chloride, 2-(Diisopropylamino)-ethyl chloride hydrochloride, N,N-Diisopropyl-2-chloroethylamine hydrochloride	4261-68-1

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Chloroalkylamine Hydrochloride Salts

Product Name	Synonyms	CAS no.
Dimethylaminoethyl Chloride Hydrochloride (Solid / 65 % Solution) (DMC)	N-(2-Chloroethyl)-dimethylamine hydrochloride, 2-Chloro-N,N-dimethylethylamine hydrochloride, 1-Dimethylamino-2-chloroethane hydrochloride, 2-(Dimethylamino)-ethyl chloride hydrochloride, N,N-Dimethyl-2-chloroethylamine hydrochloride	4584-46-7
Dimethylaminoisopropyl Chloride Hydrochloride (Solid / 65 % Solution) (DMIPC)	N-(2-Chloropropyl)-dimethylamine hydrochloride, 2-Chloro-1-(dimethylamino)-propane hydrochloride, 1-Dimethylamino-2-chloropropane hydrochloride, 2-(Dimethylamino)-(1-methylethyl)-chloride hydrochloride, 1-Methyl-2-(dimethylamino)-ethyl chloride hydrochloride, 2-Chloro-N,N-dimethylpropylamine hydrochloride, N,N-Dimethyl-2-chloropropylamine hydrochloride	4584-49-0
2-Methyl-3-Dimethylaminopropyl Chloride Hydrochloride (Solid / 65 % Solution) (DMMPC)	1-Chloro-3-(dimethylamino)-2-methylpropane hydrochloride, 1-Chloro-2-methyl-3-(dimethylamino)-propane hydrochloride, 3-Chloro-2-methyl-N,N-dimethylpropylamine hydrochloride, 3-Chloro-N,N,2-trimethylpropylamine hydrochloride, 3-Dimethylaminoisobutyl chloride hydrochloride, 3-Chloro-2-methylpropyl-(dimethyl)-amine hydrochloride, 3-(Dimethylamino)-2-methylpropyl chloride hydrochloride	4261-67-0
Dimethylaminopropyl Chloride Hydrochloride (Solid / 65 % Solution) (DMPC)	N-(3-Chloropropyl)-dimethylamine hydrochloride , 1-Chloro-3-(dimethylamino)-propane hydrochloride, 3-Chloro-N,N-dimethylpropylamine hydrochloride, 3-Dimethylamino-1-chloropropane hydrochloride, 3-(Dimethylamino)-propyl chloride hydrochloride, N,N-Dimethyl-3-chloropropylamine hydrochloride	5407-04-5

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Cyclopropyl derivatives

Product Name	Synonyms	CAS no.
Bromo Cyclopropane	Cyclopropyl bromide	4333-56-6
Cyclopropane Carbonitrile	Cyanocyclopropane, Cyclopropylnitrile, Cyclopropyl cyanide	5500-21-0
Cyclopropane Carbonyl Chloride	Cyclopropylcarbonyl chloride, Cyclopropanecarboxylic acid chloride, Cyclopropanoyl chloride, Cyclopropionyl chloride	4023-34-1
Cyclopropane Carboxaldehyde	Formylcyclopropane	1489-69-6
Cyclopropane Carboxylic acid	Cyclopropylcarboxylic acid	1759-53-1
Cyclopropane Methanol	Cyclopropane carbinol, Cyclopropyl carbinol, Cyclopropyl methanol, (Hydroxymethyl)-cyclopropane	2516-33-8
Cyclopropane Sulphonyl Chloride	-	139631-62-2
Cyclopropyl amine	-	765-30-0
Cyclopropyl Magnesium Bromide	Bromo-(cyclopropyl)-magnesium	23719-80-4
Cyclopropyl Methyl Bromide	(Bromomethyl)-cyclopropane , Bromocyclopropylmethane, Cyclopropanemethyl bromide, Cyclopropylcarbinyl bromide	7051-34-5
Dimethylamido Cyclopropanoate	N,N-Dimethylcyclopropanecarboxamide	17696-23-0
Ethyl Cyclopropane Carboximidic ester:HCl	-	52186-76-2
Ethyl Cyclopropanoate	Cyclopropanecarboxylic acid ethyl ester, Ethyl cyclopropanecarboxylate, Ethyl cyclopropylcarboxylate	4606-07-9
Methylamido Cyclopropanoate	Formamido cyclopropanecarboxylate	7108-40-9
Methyl Cyclopropane Carboximidic ester:HCl	Cyclopropanecarboximidic acid methyl ester hydrochloride, 2-[(1-Cyclopropylacetyl)-oxy]-2-iminoacetic acid hydrochloride, [(1-Cyclopropylacetyl)-oxy]-(imino)-acetic acid hydrochloride	746556-17-2
Methyl Cyclopropanoate	Cyclopropanecarboxylic acid methyl ester, Cyclopropylcarboxylic acid methyl ester, Methyl cyclopropanecarboxylate, Methyl cyclopropylcarboxylate	2868-37-3

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Inorganics

Product Name	Synonyms	CAS no.
Boron Trichloride – Dimethyloctylamine Complex (BCl3:DMOA)	Boron trichloride compound with octyldimethylamine	34762-90-8
Boron Trichloride – Trimethylamine Complex (EP455)	Boron trichloride compound with trimethylamine	1516-55-8
Hydroxylamine Sulphate (HAS)	Hydroxyammonium sulfate, Hydroxylammonium sulfate, Oxammonium sulfate	10039-54-0

Aromatics

Product Name	Synonyms	CAS no.
Benzophenone Hydrazone (BPH)	-	5350-57-2
Triphenyl Methane (TPM)	Tritan	519-73-3
Diphenyl Methane	Benzylbenzene,Ditan,1,1'-Methylenebis-(benzene)	101-81-5

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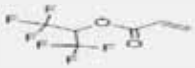
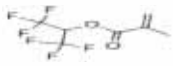
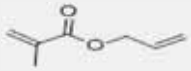
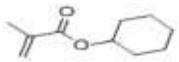
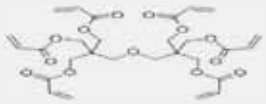
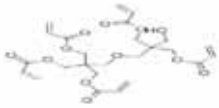
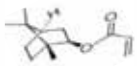
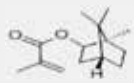
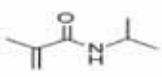
Acrylate / Methacrylate monomers

CAS no.	Product Name	Structure
2160-89-6	**1,1,1,3,3,3-Hexafluoroisopropyl acrylate**	
3063-94-3	**1,1,1,3,3,3-Hexafluoroisopropyl methacrylate**	
96-05-9	**Allyl methacrylate**	
18299-85-9	**Behenyl acrylate**	
16669-27-5	**Behenyl methacrylate**	
1070-70-8	**1,4-Butyleneglycol diacrylate**	
2082-81-7	**1,4-Butyleneglycol dimethacrylate**	
101-43-9	**Cyclohexyl methacrylate**	
29570-58-9	**Dipentaerythrityl hexaacrylate**	
60506-81-2	**Dipentaerythrityl pentaacrylate**	
97-90-5	**Ethleneglycol dimethacrylate**	
5888-33-5	**Isobornyl acrylate**	
7534-94-3	**Isobornyl methacrylate**	
13749-61-6	**Isopropylmethacrylamide**	
2156-97-0	**Lauryl acrylate**	
2549-53-3	**Myristyl methacrylate**	

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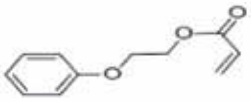
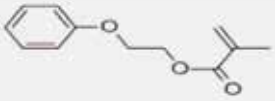
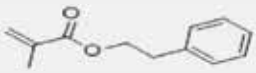
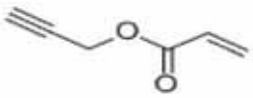
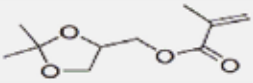
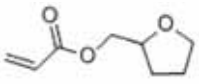
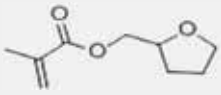
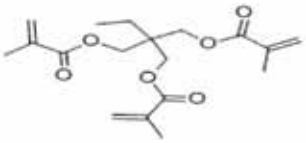
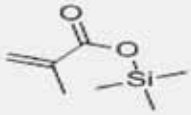
Acrylate / Methacrylate monomers

CAS no.	Product Name	Structure
2499-59-4	**Octyl acrylate**	
48145-04-6	**2-Phenoxyethyl acrylate**	
10595-06-9	**2-Phenoxyethyl methacrylate**	
3530-36-7	**Phenyl ethyl acrylate**	
3683-12-3	**Phenyl ethyl methacrylate**	
10477-47-1	**Propargyl Acrylate**	
7098-80-8	**Solketal methacrylate**	
4813-57-4	**Stearyl acrylate**	
32360-05-7	**Stearyl methacrylate**	
2399-48-6	**Tetrahydrofurfuryl acrylate**	
2455-24-5	**Tetrahydrofurfuryl methacrylate**	
3290-92-4	**Trimethylolpropane Trimethacrylate**	
13688-56-7	**Trimethylsilyl methacrylate**	

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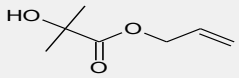
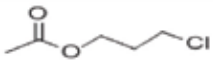
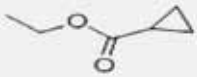
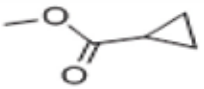
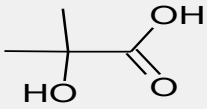
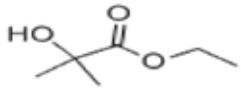
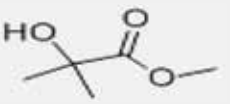
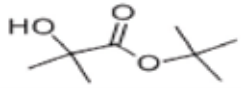
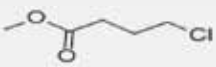
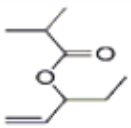
Esters

Product Name	Synonyms	Structure	CAS no.
Allyl 2-hydroxyisobutyrate	allyl hydroxyisobutyrate; α-hydroxy-isobutyric acid allyl ester; 2-hydroxyisobutyric acid allyl ester		19444-21-4
3-Chloropropyl Acetate	Acetic acid 3-chloropropylester		628-09-1
Cyclopropane Carboxylic Acid Ethyl Ester	Ethyl cyclopropanecarboxylate		4606-07-9
Cyclopropane Carboxylic Acid Methyl Ester	Cyclopropylcarboxylic acid methyl ester; Methyl cyclopropanecarboxylate; Methyl cyclopropylcarboxylate		2868-37-3
2-Hydroxyisobutyric acid	2-Hydroxy-2-methylpropionic acid; 2-Methyllactic acid; 2-Hydroxy-2-methylpropanoic acid		594-61-6
2-Hydroxyisobutyric Acid Ethyl Ester	2-Hydroxy-2-methylpropanoic acid ethyl ester; Ethyl 2-hydroxyisobutyrate; Ethyl 2-methyllactate; 2-Methyllactic acid ethyl ester		80-55-7
2-Hydroxyisobutyric Acid Methyl Ester	2-Hydroxy-2-methylpropanoic acid methyl ester; Methyl 2-hydroxyisobutyrate; 2-Methyllactic acid methyl ester; Methyl 2-methyllactate		2110-78-3
2-Hydroxyisobutyric Acid Tertiary Butyl Ester	tert-butyl 2-hydroxyisobutyrate; tert-butyl α-hydroxyisobutyrate; 2-Hydroxy-2-methylpropanoic acid 1,1-dimethylethyl ester		36293-63-7
Methyl-4-Chlorobutyrate	4-Chlorobutyric acid methyl ester; 4-Chlorobutanoic acid methyl ester		3153-37-5
1-Penten-3-yl Isobutyrate	2-Methylpropanoic acid 1-ethyl-2-propen-1-yl ester		945529-33-9
Resorcinol Diacetate	1,3-Diacetoxybenzene		108-58-7

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Friedel Crafts Derivatives

Product Name	Synonyms	CAS no.
2-Chloro-2', 4'-Difluoroacetophenone	2-Chloro-1-(2,4-difluorophenyl)-1-ethanone, 2,4-Difluorophenacyl chloride, α-Chloroacetyl-2,4-difluorobenzene	51336-94-8
2-Chloro-4'-Fluoroacetophenone	2-Chloro-1-(4-fluorophenyl)-ethanone, 4-Fluorophenacyl chloride	456-04-2
4-Chloro-4'-Fluorobutyrophenone	4-Chloro-1-(4-fluorophenyl)-1-butanone, 3-Chloropropyl 4'-fluorophenyl ketone, 3-(4-Fluorobenzoyl)-propyl chloride, 4-(4-Fluorophenyl)-4-oxobutyl chloride, 4'-Fluoro-4-chlorobutyrophenone	3874-54-2
Diphenyl Acetonitrile	α-Phenylbenzeneacetonitrile, Benzhydryl cyanide, Diphenyl α-cyanomethane, Diphenylmethyl cyanide, α-Phenylbenzyl cyanide	86-29-3
4-Methoxyphenyl acetonitrile	p-Anisyl cyanide, 4-Methoxybenzeneacetonitrile, 4-Methoxybenzyl cyanide	104-47-2
4-Methyl benzophenone	4-Phenyl tolyl ketone	134-84-9
2,4,6-Trimethylbenzophenone	2,4,6-Trimethylbenzophenone, Phenyl-(2,4,6-trimethylphenyl)-methanone, Benzoylmesitylene, Mesityl phenyl ketone, Phenyl-(2,4,6-trimethylphenyl)-ketone	954-16-5
Trityl Alcohol	Triphenylcarbinol, α,α-Diphenylbenzenemethanol, Hydroxytriphenylmethane, Triphenylmethyl alcohol, Triphenylmethanol	76-84-6
Trityl Chloride	Chlorotriphenylmethane, Triphenylchloromethane, Triphenylmethyl chloride	76-83-5

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Acid Chlorides

Product Name	Synonyms	CAS no.
Acetoxy Acetyl Chloride	2-Acetoxyacetyl chloride	13831-31-7
Acetoxyisobutyryl Bromide	1-Bromocarbonyl-methyl ethyl acetate	40635-67-4
Acetyl Chloride	Ethanoyl chloride	75-36-5
Acryloyl Chloride	2-propenoyl chloride, Prop-2-enoyl chloride	814-68-6
Adipoyl Chloride	Hexanedioyl dichloride, 1,4-Bis-(chlorocarbonyl)-butane, Hexanedioic acid dichloride	111-50-2
Butyryl Chloride	Butanoyl chloride, Butyric acid chloride, Butyric chloride	141-75-3
4 -Chlorobutyryl Chloride	4-Chlorobutanoyl chloride, 4-Chlorobutyric acid chloride	4635-59-0
2-Chloropropionyl Chloride	2-Chloropropanoyl chloride, α-Chloropropionic acid chloride, 2-Chloropropionic acid chloride	7623-09-8
3-Chloropropionyl Chloride	3-Chloropropanoyl chloride, β-Chloropropionyl chloride, 3-Chloropropionic acid chloride	625-36-5
Cyclobutane Carbonyl Chloride	Cyclobutanecarboxylic acid chloride, Cyclobutanoyl chloride, Cyclobutylcarbonyl chloride, Cyclobutylcarboxylic acid chloride	5006-22-4
Cyclohexane Carbonyl Chloride	Cyclohexanecarboxylic acid chloride, Cyclohexanoyl chloride, Hexahydrobenzoyl chloride	2719-27-9
Cyclopropyl Carbonyl Chloride	Cyclopropylcarbonyl chloride, Cyclopropanecarboxylic acid chloride, Cyclopropanoyl chloride, Cyclopropionyl chloride	4023-34-1
2,2 - Dimethylbutyryl Chloride	2,2-Dimethylbutanoyl chloride	5856-77-9
3,3 - Dimethylbutyryl Chloride	tert-Butylacetyl chloride, 3,3-Dimethylbutanoyl chloride, 3,3-Dimethylbutanoic acid chloride	7065-46-5
Diphenylacetyl Chloride	-	1871-76-7
2-Ethyl Butyryl Chloride	-	2736-40-5

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Acid Chlorides

Product Name	Synonyms	CAS no.
Ethyl Chlorooxoacetate	Ethoxalyl chloride, Ethyl chlorooxalate, Ethyloxalyl chloride, Chlorooxoacetic acid ethyl ester	4755-77-5
Ethyl-4-Chloro-4-Oxobutyrate	3-Carbethoxypropionyl chloride, 3-(Chloroformyl)-propionic acid ethyl ester, 4-Chloro-4-oxobutanoic acid ethyl ester, 3-(Ethoxycarbonyl)-propionyl chloride, Ethylsuccinyl chloride	14794-31-1
Ethyl-3-Chloro-3-Oxopropionate	Ethyl Malonyl Chloride, Carbethoxyacetyl chloride, Chloroformylacetic acid ethyl ester, 3-Chloro-3-oxopropionic acid ethyl ester, Ethoxycarbonylacetyl chloride, Malonic acid ethyl ester chloride	36239-09-5
2-Furoyl Chloride	2-Furancarbonyl chloride, 2-Furoic acid chloride	527-69-5
Isobutyryl Chloride	Chloro isopropyl ketone, Dimethylacetyl chloride, Isobutanoyl chloride, 2-Methylpropionyl chloride	79-30-1
Isovaleryl Chloride	Isopropylacetyl chloride, Isovaleric acid chloride, 3-Methylbutanoyl chloride, 3-Methylbutyryl chloride	108-12-3
Malonyl Dichloride	Propanedioyl dichloride	1663-67-8
Methacryloyl Chloride	2-Methyl-2-propenoyl chloride, Methacrylic chloride	920-46-7
4-Methoxy Benzoyl Chloride	p-Anisoyl chloride	100-07-2
2-Methyl Butyryl Chloride	2-Methylbutanoyl chloride, 2-Ethylpropanoyl chloride	57526-28-0
Methyl-3-Chloro-3-Oxopropionate	Methyl Chloroxoacetate, 2-(Methoxycarbonyl)-acetyl chloride, Malonic acid chloride monomethyl ester, Methyl-(chlorocarbonyl)-acetate, 3-Chloro-3-oxopropanoic acid methyl ester	37517-81-0
2-Methyl Valeryl Chloride	2-Methylpentanoyl chloride	5238-27-7
Oleoyl Chloride	Oleic acid chloride, Oleyl chloride	112-77-6
Phenylacetyl Chloride	Benzeneacetyl chloride, Phenylacetic acid chloride	103-80-0
Trimesoyl Chloride	1,3,5-Benzenetricarbonyl trichloride	4422-95-1

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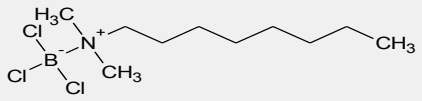
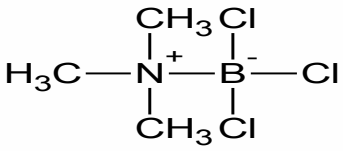
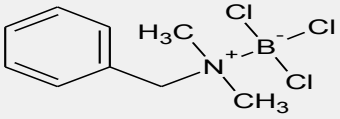
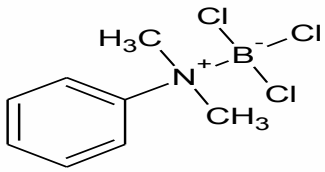
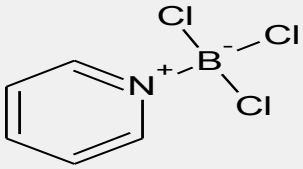
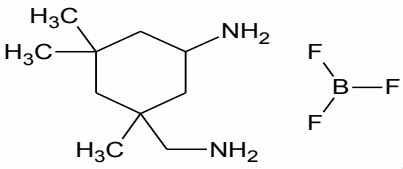
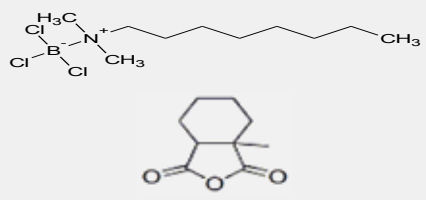
Boron Complexes

CAS no.	Product Name	Structure
34762-90-8	**Boron Trichloride – Dimethyloctylamine Complex**	
1516-55-8	**Boron Trichloride – Trimethylamine Complex**	
34762-89-5	**Boron Trichloride - Dimethylbenzylamine Complex**	
121-69-7, 10294-34-5	**Boron Trichloride - N, N - Dimethylaniline Complex**	
2903-67-5	**Boron Trichloride Pyridine Complex**	
7637-07-2, 2855-13-2	**Boron Trifluoride Isophorone Complex (50% in Methanol)**	
34762-90-8, 25550-51-0	**Boron Trichloride – Dimethyloctylamine anhydride solution complex**	

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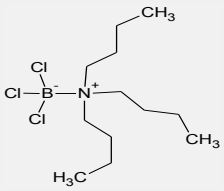
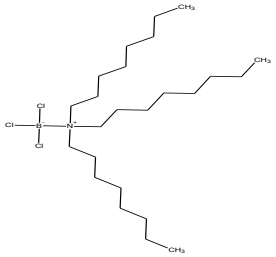
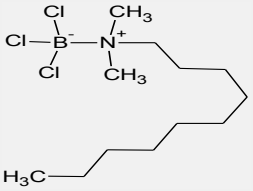
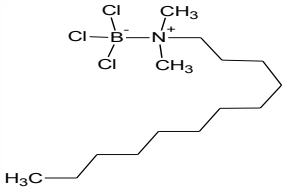
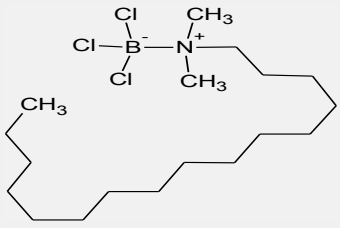
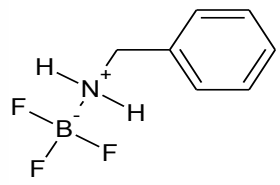
Boron Complexes

CAS no.	Product Name	Structure
102-82-9, 10294-34-5	**Boron Trichloride – Tri-n-butylamine complex**	
1116-76-3, 10294-34-5	**Boron Trichloride – Tri-n-octylamine complex**	
1120-24-7, 10294-34-5	**Boron Trichloride – Dimethyldecylamine Complex**	
112-18-5, 10294-34-5	**Boron Trichloride – Dimethyldodecylamine Complex**	
112-69-6, 10294-34-5	**Boron Trichloride – Dimethylhexadecylamine Complex**	
696-99-1	**(Benzylamine) trifluoro boron**	

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Additional Products

Product Name	Synonyms	CAS no.
2-Bromo-2-Methyl Propionyl Bromide (2-BIB)	2-Bromo-2-methylpropionyl bromide,Bromodimethylacetyl bromide,2-Bromoisobutyryl bromide,2-Bromo-2-methylpropanoyl bromide	20769-85-1
Chlorocyclohexane (CCH)	Cyclohexyl chloride	542-18-7
6-Chloro-Hexan-1-ol	6-Chloro-1-hexanol, 6-Chlorohexyl alcohol, 6-Hydroxyhexyl chloride, 1-Chloro-6-hydroxyhexane, Hexamethylene chlorohydrin	2009-83-8
1-Chloro-5-Hexanone	6-Chloro-2-hexanone	10226-30-9
9-Chloro Nonanol	-	51308-99-7
8-Chloro Octanol	8-Chloro-1-hydroxyoctane	23144-52-7
3-Chloro-1-Propanol	1-Chloro-3-hydroxypropane,3-Hydroxy-1-chloropropane,Trimethylene chlorohydrin	627-30-5
Cyclobutane Carboxaldehyde	Formylcyclobutane	2987-17-9
Cyclohexane Carboxaldehyde	-	2043-61-0
Cyclopentane Carboxaldehyde	-	872-53-7
Dibenzylglycyl Salicylamide	5-{[Bis-(benzyl)-amino]-acetyl}-salicylamide,5-{[Bis-(phenylmethyl)-amino]-acetyl}-2-hydroxybenzamide, 5-(N,N-Dibenzylglycyl)-salicylamide	30566-92-8
1,3 Dichloroacetone	1,3-Dichloro-2-propanone,Bis-(chloromethyl)-ketone	534-07-6

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Additional Products

Product Name	Synonyms	CAS no.
1-Hepten-3-ol	3-Hydroxy-1-heptene	4938-52-7
1-Hexen-3-ol	Propyl vinyl carbinol, 1-Vinyl-1-butanol	4798-44-1
N-Isopropylmethylacrylamide	2-Methyl-N-(1-methylethyl)-2-propenamide, N-Isopropyl-2-methylacrylamide	13749-61-6
Isopropyl 2-Bromo-2-methylpropanoate	2-Bromoisobutyric acid isopropyl ester, 2-Bromo-2-methylpropionic acid 1-methylethyl ester, 2-Bromo-2-methylpropionic acid isopropyl ester, Isopropyl 2-bromoisobutyrate	51368-55-9
O-Methylhydroxylamine Hydrochloride	Methoxyamine hydrochloride, Methoxylamine hydrochloride	593-56-6
2-Methyl-1,3-Pentadiene	trans-2-Methylpentadiene, trans-2-Methyl-1,3-pentadiene	926-54-5
1-Octen-3-ol	Amyl vinyl carbinol, Pentyl vinyl carbinol	3391-86-4
1-Penten-3-ol	α-Ethylallyl alcohol, Ethyl vinyl carbinol, 3-Hydroxy-1-pentene	616-25-1
Sodium Bis Trimethylsilylamide	1,1,1,3,3,3-Hexamethyldisilazane sodium salt, Bis-(trimethylsilyl)-amide sodium salt, N-Sodiohexamethyldisilazane, Sodium hexamethyldisilazane, 1,1,1-Trimethyl-N-(trimethylsilyl)-silanamine sodium salt	1070-89-9
N-Tert-Butoxycarbonylglycine	N-tert-Butoxycarbonylglycine, 2-{[(tert-Butoxy)-carbonyl]-amino}-acetic acid	4530-20-5

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LoVOC® 100-F8: Adhesion Promotion of Textile Reinforcement to Elastomers for Hosing & Belting.

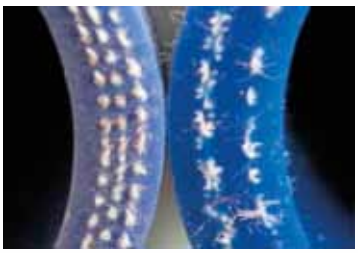
Introduction

Syntor Fine Chemicals (Syntor) is committed to providing technologically advanced, next-generation solutions to industry problems. Its range of unique, patented materials can be tailored to suit a wide range of application areas.

Products that have been developed are a range of high performance **UV curable polymers**, under the brand umbrella **LoVOC®**. They are solvent free and have negligible volatile organic content (VOC's) upon cure, thus making them environmentally advantageous.

LoVOC® 100 series

LoVOC® 100 series adhesion promoters allow coating of difficult-to-adhere-to substrates without the need for harsh chemicals or corona discharge pre-treatments. Examples of application areas include adhesion to plastics, metals, textiles and rubber compounds for a wide range of end-uses, including printed military camouflage apparel, automotive components, PVC window lamination and reinforced hoses and belts.



Cross-sections of Textile reinforced silicone hoses. Three-ply aramid hose (left) and two-ply polyester hose (right).

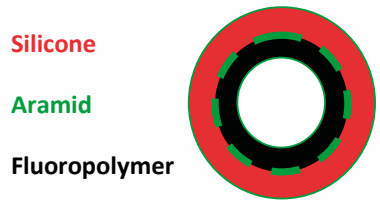
LoVOC® 100-F8 has been developed to promote the adhesion of textiles to elastomers such as EPDM, silicone and fluoropolymers. It is thinly applied as a solvent-free, 100% active liquid using standard coating techniques such as roller coating or spraying. **LoVOC®** is subsequently UV cured in under a second to give a flexible polymeric layer. The textile can then be calendered with elastomer and vulcanised in the conventional manner.

Why Reinforce?

Reinforcing rubber hoses and belts with fabric, improves residual strength and elongation by up to 40%. Non-reinforced versions typically show a 15% loss of strength and damage after the first elongation; this shortens the product lifespan. Bonding fabric reinforcements to rubber substrates is difficult, thus fabrics are normally pre-treated with an adhesion promoter. Existing treatments have a tendency to delaminate when subjected to extreme heat & pressure. **LoVOC®** has been developed to combat this issue, without compromising performance or DIN standards.

Applications

LoVOC® 100-F8 is particularly advantageous when used for reinforced hoses and belts, for example **automotive turbocharger hoses** are made from a sandwich of temperature resistant silicone elastomer and chemical resistant fluoro-polymer separated by a layer of aramid fabric. Treating the aramid reinforcement with **LoVOC®** substantially increases the bond strength to ***both*** elastomers, amplifying the physical integrity of the product, thus lengthening its lifespan and reducing the cost of replacement.



Typical composition of a Turbocharger hose.

Key Benefits

LoVOC® 100-F8 is a unique, next-generation product that considerably boosts performance, doubling the bond strength of its nearest rival. Key performance attributes include: -

- Significant increase in bond strength.
- Resistant to Temperatures over 225°C.
- High dynamic stability.
- Reduced processing costs, compared with water-based adhesion promotion systems.

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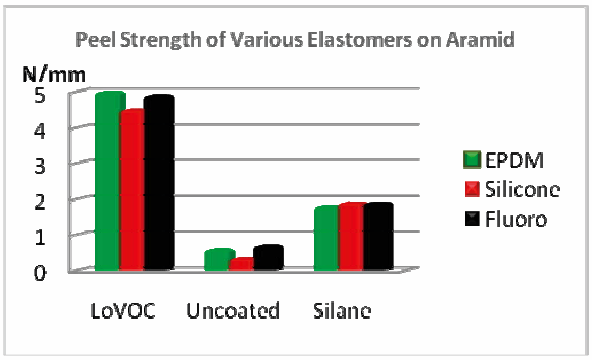
Performance

Syntor's **LoVOC® 100-F8** adhesion promoter gives significant performance advantages over existing technologies. It bonds the textile and elastomer to such a degree that during a 180° Peel Test (DIN53530), cohesive failure of the rubber occurs before the interfacial bond; as shown in the **Aramid Textile** sample below.

Fluoropolymer LoVOC® coated	Uncoated Aramid	Silicone LoVOC® coated
✓	✘	✓

Flexibility

LoVOC® provides a flexible system that can increase performance with a variety of textiles and elastomers. The table below shows peel strength values for a selection of these materials compared with uncoated fabric and a water-based silane.

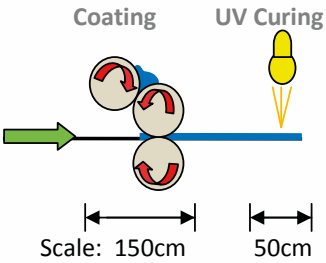


Coating Application & UV curing

The textile is coated with Syntor's unique **LoVOC®** formulation, using standard coating techniques, and then passed under a UV light. This creates a reaction which turns it into a polymer almost instantaneously. As **LoVOC®** is 100% active, this process eliminates the need for solvents, which are both costly to evaporate and often harmful.

Small footprint

A UV curing lamp takes up a fraction of the space of a drying tunnel or stenter chambers. In some cases UV units have been retro-fitted onto existing coating lines, adding nothing to the floor space required for processing.



Viscosity

The viscosity of **LoVOC®** can be easily tailored to meet the needs of the end user

Viscosity (25°C)	*100 -1500 cP*
Application Methods	*Roller coating / screen printing*
Coating Weight	*Typically 3 - 5 g/m²*
Line Speed (e.g.)	*7m/min single lamp*
UV source (e.g.)	*Iron doped, mercury bulb.*

Commercial Benefits

Compared to current water based silane systems, **LoVOC®** offers a multitude of benefits, including:-

- ***Cost Savings -*** Conventional silane treatments contain up to 80% water. This is applied in a dip bath, before the water is evaporated using hot-air tunnels. A *90% reduction in energy costs* has been calculated - for each 50,000m coated using **LoVOC® 100-F8** this equates to 65,000 kWh's, potentially saving €8,500
- ***Coating speed -*** Typical application speeds for silanes are approx 0.5m/min. **LoVOC®** can be processed at a minimum of 7m/min which, when coating double-sided, is 700% faster. ***A whole years worth of coating could be completed in 2 months.*** UV lamps are also often used in series, making manufacturing throughput faster.
- ***Logistics -*** **LoVOC®** contains no solvent (organic or aqueous), so a reduced volume is required, meaning lower transport costs and storage needs.
- ***Environmental -*** Lower energy use, transport and packaging, indicates a potential CO_2 saving of ~2.5 TPA for each 50,000m² of coated textile.

LoVOC® offers huge cost savings in production time, energy, and transport with the added benefit of reduced carbon emissions.

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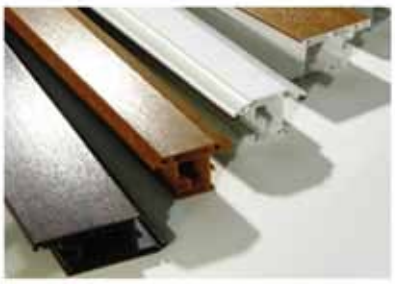
LoVOC® 100-F10: Adhesion Promotion for PVC Profile Wrapping Applications.



Introduction

LoVOC® 100-F10 is a UV curable, VOC free, liquid adhesion promoter for PVC profile wrapping applications.

It is suitable for use with both virgin PVC, uPVC, a range of modified grades of PVC and other low surface energy plastics; such as Polypropylene, Polyethylene, Polystyrene and ABS.

Benefits

LoVOC® 100-F10 eliminates the need for substrate pre-treatment prior to wrapping, for example solvent washing or Corona treatment, meaning shorter industrial processes and potential overall cost savings.

It eliminates hazardous VOCs, for example Methylene Chloride and Methyl Ethyl Ketone, from the profile wrapping process making solvent recovery systems unnecessary.

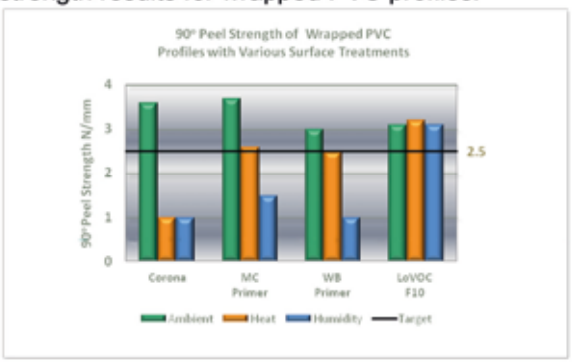
It can be applied using standard techniques at low coating weights.

It enables quality lamination of decorative foils to PVC profiles when used in conjunction with industry standard polyurethane hotmelt adhesives, giving consistently high adhesive peel strengths even when subjected to a variety of environmental conditions.

Performance Data

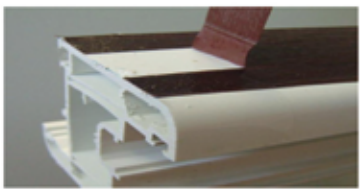
In industry standard tests, such as RAL716/1 part 7, LoVOC® 100-F10 demonstrates significantly better performance characteristics than all existing technologies, particularly under artificial weathering conditions.

The chart below illustrates typical 90° peel strength results for wrapped PVC profiles.



The results are recorded in N/mm and show the favourable comparison of profiles coated with LoVOC® 100-F10 against a variety of industry standard physical and chemical surface pre-treatments; such as Corona treatment, Methylene Chloride and water based primers.

LoVOC® 100-F10 shows a good green strength and an even build up of final lamination bond strength. The adhesion promoter consistently delivers 90° peel strengths in excess of 3N/mm accompanied by tearing of the decorative foil (seen after 24 hours ageing) and under all ageing conditions exceeds the industry target peel strength of 2.5N/mm.



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Test Data

Test	Typical Result
Adhesion to PVC Based Substrates	BS EN ISO2409:2007 - Rating 0
Artificial Weathering Resistance	No blistering or delamination of foil
Peel Strength Values (90°)	>3N/mm, with foil tear

Technical Data

Appearance	Low viscosity liquid
Colour	Colourless - pale yellow
Active Material	100%
VOC Content	0%
Viscosity (25°C)	10 cP
Specific Gravity	0.9 gcm^{-3}
Boiling Point	> 200°C
Solubility	Insoluble in water, soluble in organic solvents
Shelf Life	Stable for 6 months when used and stored according to NPS' recommendations

Application

LoVOC® 100-F10 has been designed to be used with industry standard, widely used primer application equipment, such as felt pads but it can also be applied to PVC profiles using less common and more complex vacuum application systems, such as the Düspohl Primestar 2010™.

Other application methods; such as spraying or roller coating are also possible.

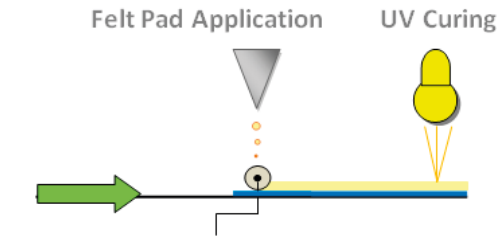
Application Methods	Various - see above
Coating Weight (cured)	2 - 3 gsm
Cure Speed	10 - 12 m/min
UV Lamp Specifications	Medium pressure UV lamp output at 100% - minimum 200W/cm
UV Bulb Type	Iron doped mercury (D) bulb

UV Curing

There are many benefits associated with using UV curing and it is a versatile and cost effective method for decorating PVC profiles. It can offer significant improvements when compared with conventional thermal curing methods (using solvent or water based coatings), providing critical advantages for profile wrappers such as;

- Rapid curing times with minimal heat generation
- Lower energy costs
- Reduced solvent content and VOC emissions
- More user/ environmentally friendly products
- Reduced floor space requirements

The schematic below represents the application and curing of **LoVOC® 100-F10** onto a PVC profile.



UV Dosage & Intensity Requirements

LoVOC® 100-F10 has been successfully cured with a number of different UV lamp systems using a bulb that has an output rich in UVA (wavelength range 320-390nm), as this is the region that offers most effective curing. For more information on the recommended ranges of dosage (energy density) and intensity (peak energy), please contact a member of our technical team.

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LoVOC® 100-F7: Adhesion Promotion of Flame Retardant Aramid Textiles for Printing and Dyeing.

Introduction

Syntor Fine Chemicals (Syntor) is committed to providing technologically advanced, next-generation solutions to industry problems. Its range of unique, patented materials can be tailored to suit a wide range of application areas.

Enhanced Protection

The use of Flame Retardant Fabric in military uniforms is vital to safeguard soldiers from the dangers of 'flash fire' and high temperatures in combat situations. Polyaromatic amide cloth gives the best performance but these inherently flame-resistant aramid fabrics (such as Nomex®, Kermel®, Conex®) are extremely difficult to dye & print due to the highly crystalline fibre structure. Current colouration methods can compromise key performance characteristics such as tensile strength, colour retention and wash durability. Whilst flame retardant aramid fibres may be blended with other fibres, such as cotton or viscose to improve print and dyeability, key performance functionalities can still be sacrificed.

Common Problem – Unique Solution

Products that have been developed are a range of high performance **UV curable polymers**, under the brand umbrella **LoVOC®**. They are solvent free and have negligible volatile organic content (VOC's) upon cure, thus making them environmentally advantageous.

Topically applied **LoVOC® 100-F7** has been developed to promote the adhesion promotion of **printing inks and dyes** to a range of textile substrates including aramids, multi-fibre blends and high tenacity Nylons without compromising performance or test specification requirements. **LoVOC®** enables fabrics to be printed or dyed with a single-stage process using conventional techniques; this significantly cuts down the processing times of double-dye / print routes and also gives greige flexibility for multiple print colour runs by eliminating the need for base-dye fabrics.

Tomorrow's Soldier, Today

A Soldier's Uniform is his Last Line of Defence

Aramid camouflage fabric and garments give extensively improved protection against flash flames, intense heat, fire and skin burns. The additional 10+ seconds that FR fabrics give to a soldier can increase his survivability and lethality.

"As soon as you have the blast, you have fire, if the blast doesn't kill you the burns & fire can."

F. Coppola, Deputy. Product Mgr, PEO-Soldier Systems, Ft Belvoir, USA

Key Benefits

Current technological advancements have led to: -

- Lower coating weights
- Faster curing times and speeds
- Integration of lighter-weight base fabrics
- Elimination of base dyed greige & SKU's

All of which give Mill Flexibility & Cost Saving.

Syntor's **LoVOC®** coated aramid fabric has raised the standard demanded of current flame resistant (FR) military garments. Trials prove that 100% lighter-weight aramid fabric bases can be used and still perform to specification, typically reducing fabric weight / total soldier load by up to 55g (2oz) per m², or 370g (13oz) per garment.

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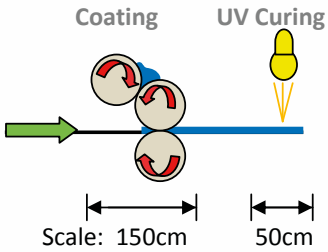
Coating Application & UV Curing

The textile is coated with Syntor's unique **LoVOC®** formulation at low coating weights of 3-4 g/m², using standard coating techniques such as roller coating or continuous printing. It is subsequently UV cured in under a second to give a flexible, breathable polymeric layer, creating a reaction which turns it into a polymer almost instantly.

Small Footprint

A UV curing lamp takes up a fraction of the space of a drying tunnel or stenter chambers. In some cases UV units have been retro-fitted onto existing coating lines, adding nothing to the floor space required for processing.



Performance

Syntor's **LoVOC® 100-F7** adhesion promoter gives significant performance advantages over existing technologies. The table below highlights some of the key results achieved on a 150 g/m² Nomex® IIIA *ecru* plain weave aramid fabric, tested to current **UK BS EN ISO methods**, in line with military specifications. Tests were conducted by an independent MoD accredited test house.

Physical Properties	NPS Result	Test Method Ref
Flame Resistance	No flame / hole	BS EN ISO 15025
After Flame	0.0 X 0.0	2.O MAX
After Glow	0.0 X 0.0	2.0 MAX
Colourfastness: Water	4.5	BS EN ISO 105-E01
Laundering C2S @ 60°	4.5	BS EN ISO 105-C06
Wet / Dry Rubbing	2 / 4	BS EN ISO 105-X12
Perspiration acid/alkali	4.5 / 4.5	BS EN ISO 105-E04
Colour Abrasion	35000 rubs	BS EN ISO 12947-2
Pilling	4.5	BS EN ISO 12945-1
Light Fastness	5+	BS EN ISO 105-B02
Dimensional Stability	2.0x2.0	BS EN ISO 25077
Tear Strength	35x25	BS EN ISO 13937-3
Breaking Strength	750x650N	BS EN ISO 13934-1

**Further Canadian CGSB & US ASTM Test Data Available Upon Request*

Technical Data

In addition to complying with the mandatory IRR specifications for military standards, printed fabric with a **LoVOC®** coating pass the Extended IRR range, thus providing better concealment.

***Note**: Mandatory IR Spec = 700-1350; Extended Spec = 400-2000; the broken (dotted) line is the IR Target for Desert Brown; the upper and lower lines show the boundaries of compliance over the IR range; the central orange line is the actual NPS IR value achieved.*

Commercial Benefits

This product has made a major breakthrough and redefined the standard for printed military combat uniforms. **LoVOC® 100-F7** is a unique, next-generation product that offers a multitude of benefits, including:-

- Advanced **Protection** against Fire and Heat.
- Improved **Wearer Comfort** (lighter-weight).
- Excellent **Colour Yield,** Enhanced Colour Retention and **Resistance to Fading**.
- Superior **Colour Compliance** across extended **IR Specifications** for greater concealment.
- Enhanced Product **Durability** and Physical **Performance** & Improved Garment **Lifespan**.
- No impingement on **breathability** and flexibility.

LoVOC® provides a flexible system that can increase performance with a variety of textiles. Down-chain **Cost Benefits** include: -

- Reduced mill stocks with better greige flexibility – eliminates the need for base fabric dyeing.
- Simplified production, lower processing costs and improved throughput, using a single-step print / dye option for multi-fibre blends and fabrics.
- Batch and garment continuity / conformity.
- Rapid response to multiple print design runs.

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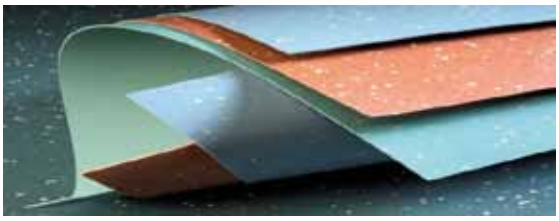
LoVOC® 100-F6: Adhesion Promotion for Polyolefin and Rubber Flooring.



Introduction

LoVOC® 100-F6 is a UV curable, VOC free, liquid adhesion promoter for polyolefin and rubber flooring substrates.

In recent years, Poly (vinyl chloride), more commonly known as PVC (or 'vinyl'), has received bad press around its potential to cause harm to human health and the environment. PVC typically contains high levels of phthalates and chlorinated chemicals (used as plasticisers) that during a fire can release highly toxic furans, dioxins and hydrogen chloride.

In anticipation of changes to the legislation surrounding the use of PVC in consumer goods, industry is taking steps to reduce or eliminate the use of PVC in their products.

The domestic and industrial flooring industry has traditionally used a large amount of PVC but the current trend is to move away and develop innovative PVC free flooring products based on thermoplastic polyolefins, elastomers and rubbers. These products do not contain harmful plasticisers or halogens and are deemed to be more environmentally friendly. They also compare favourably with PVC products on cost when considering the total life cycle. In terms of general performance they compete with their PVC counterparts but they have a significant drawback in that it is very difficult to achieve acceptable levels of adhesion to concrete and plywood base floors when using typical 'off-the-shelf' water based floor adhesives.

LoVOC® 100-F6 offers a realistic solution. By improving the adhesive quality of the substrate it allows the use of these environmentally more acceptable, alternative flooring materials whilst still achieving high industry set standards.

Benefits

Use of **LoVOC® 100-F6** eliminates the need for pre-treatment of polyolefin and rubber flooring substrates, for example corona discharge or surface roughening, in order to ensure good adhesion to base floors.

LoVOC® 100-F6 imparts consistent, high adhesive peel strengths to the bonded flooring materials that are comparable to those achieved with their PVC containing counterparts.

LoVOC® 100-F6 renders polyolefin and rubber flooring more 'universal' as it has proven performance with a wide range of water based and solvent free adhesives, under differing test conditions.

Overview of Performance data

When tested using industry standard test methods, such as DIN EN 1372:1999, **LoVOC® 100-F6** shows significantly improved performance characteristics when compared to all existing technologies, namely standard primers, corona treatment and surface roughening. Test data available on request.

Application

LoVOC® 100-F6 has been primarily designed to be roller coated, at low coating weights, onto polyolefin and rubber flooring substrates then UV cured. Due to the tailorable viscosity other application methods such as spraying may be possible.

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LoVOC® 100-F9: Adhesion Promotion for non PVC Acoustic Flooring Applications.

Introduction

LoVOC® 100-F9 is a UV curable, VOC free, liquid adhesion promoter for non PVC acoustic flooring applications. It has been specifically designed to improve the lamination bond strength between closed cell acoustic foams (such as those made from polyurethane and polyvinylchloride) and rubber flooring, when employing polyurethane hot melt adhesives.

LoVOC® 100-F9 is applied to the rubber flooring prior to lamination of the acoustic foam, and imparts consistent, high adhesive peel strengths to the bonded flooring system that are comparable to those achieved with PVC containing counterparts. The foam backed rubber flooring can then be installed on site using industry standard water based or solvent free flooring adhesives.

Acoustic flooring is used in areas where sound insulation is an important feature such as healthcare, education and social housing and in high footfall areas such as schools and hospitals. **LoVOC® 100-F9** can deliver a product that will not suffer delamination or deterioration in performance.

Benefits

LoVOC® 100-F9 essentially replaces other types of pre-treatment for rubber flooring substrates, used prior to lamination, such as corona discharge treatment or surface roughening. Unlike these alternative pre-treatments, the coating and curing of **LoVOC® 100-F9** onto rubber flooring is a clean and efficient process generating the minimum of waste.

Overview of Performance Data

When tested using industry standard test methods, such as DIN EN 1372:1999, **LoVOC® 100-F9** shows excellent performance characteristics compared to existing technologies, such as surface roughening with results available on request.

Application

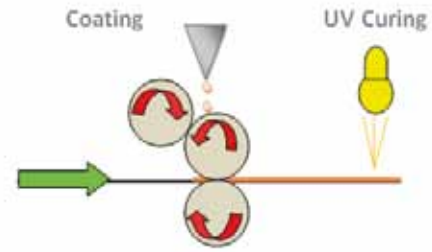
LoVOC® 100-F9 has been primarily designed to be roller coated onto the rubber flooring substrates then UV cured. However, other application methods such as spraying may be possible.

UV Curing

There are many benefits in utilising UV curing as a versatile and cost effective process for coating polyolefin and rubber flooring substrates. It can offer significant benefits versus conventional thermal curing methods (using solvent or water based coatings), providing critical advantages for manufacturers such as;

- ✓ Rapid curing times with minimal heat generation
- ✓ Reduced floor space requirements
- ✓ Lower Energy costs/CO_2emissions
- ✓ More user/ environmentally friendly products
- ✓ Less waste generation

The schematic represents the application and curing of **LoVOC® 100-F6** or **100-F9** onto flooring substrates.



Scale |← 150cm →| |←50cm→|

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