

The Formulary Guide for

Methyl Soyate

a biobased alternative to petrochemicals

The Formulary Guide for
Methyl Soyate





Methyl soyate: The natural solution for safer solvents.

As companies strive to improve safety for their employees and meet regulatory requirements, interest in biobased products that can replace petroleum-based chemicals is growing. Methyl soyate, a biobased solvent made from soybean oil, is an excellent replacement for petrochemical solvents. It offers numerous advantages over traditional solvents.

Safety advantages.


- High flash point (greater than 360 degrees F)
- Low VOC levels (<50 g/L)
- Low toxicity
- Not listed as a Hazardous Air Pollutant (HAP)

Environmental advantages.

- Non-ozone-depleting chemical (ODC)
- Non-SARA reportable
- Readily biodegradable
- Potential for reduced waste-disposal costs

Performance advantages.

- Can be used to formulate many types of products
- Provides effective solvency with a kauri-butanol (KB) value of 58
- Compatible with other organic solvents



Methyl soyate is the product of soybean farmer initiative.

Every farmer in the country contributes to the soybean checkoff at the rate of 0.5 percent of the market price per bushel sold. These funds are invested in programs that can add value and increase demand for U.S. soybeans. Methyl soyate was developed because of checkoff-funded efforts – and the foresight of U.S. soybean farmers.

United Soybean Board. Farmers investing in the future.

Consisting of 64 farmer-directors, the United Soybean Board (USB) oversees checkoff funds that are invested in national programs, including International Marketing, Domestic Marketing, New Uses, Production and Communications. The widespread efforts of USB's New Uses Committee have resulted in the development and commercialization of methyl soyate.

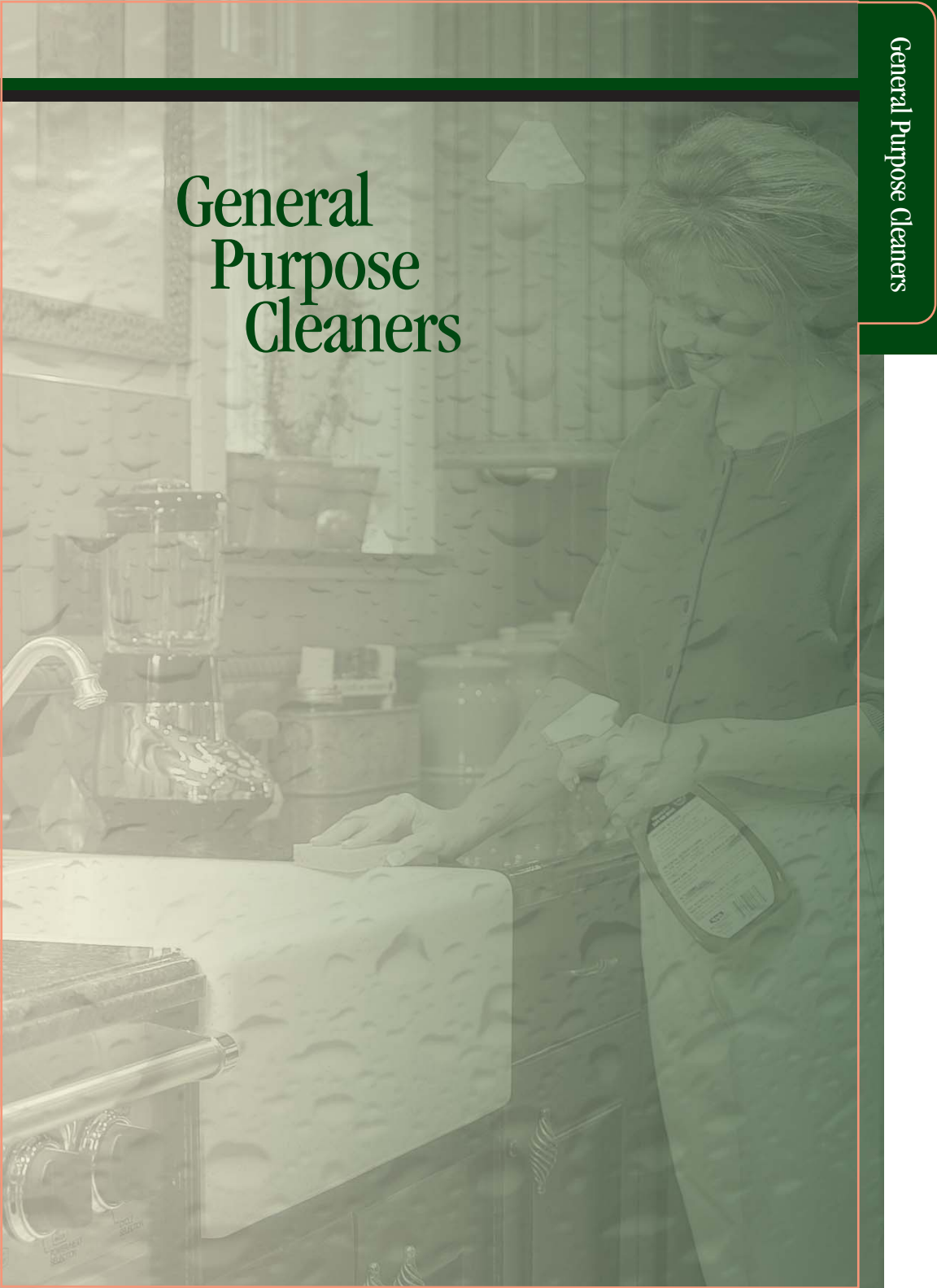
Methyl Soyate Specifications for Solvent Applications

In order to achieve optimum results from the formulations in this guide, it is important to utilize soy methyl esters that meet the following property standards. These standards have been voluntarily set by this industry to provide consistent product quality.

PROPERTY	METHOD*	LIMITS	UNITS
Total Glycerin	ASTM D 6584	0.240 max	% mass
Free Glycerin	ASTM D 6584	0.02 max	% mass
Flash Point (Closed Cup)	ASTM D 93	100.0 min	°C
Kinematic Viscosity	ASTM D 445	3.9 to 4.3	mm ²
Acid Number	ASTM D 664	0.25 max	% mass
Specific Gravity	ASTM D 1298	0.885-0.905	
Moisture	ASTM D 2709	0.5 max	% mass
Cloud point	ASTM D 2500	2 max	°C
Kauri-Butanol Value	ASTM D 1133	57 min	
Iodine Value	ASTM D 1959	130 min	
Vapor Pressure	ASTM D 5191	1.0 max	mm Hg
VOC level	EPA method 24 or South Coast Air Quality District Method 304	50 max	g/l

*Other test methods may be used if technically equivalent to those listed.

General Purpose Cleaners



All-Purpose Cleaner Concentrate

An all-purpose cleaner concentrate that can be diluted with water and used on hard surfaces, such as counter tops, to remove dirt.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SB-W	7.95
d-Limonene, Technical Grade	1.98
NINOL® 11-CM	68.41
Westvaco L-5 (Westvaco) – Fatty Acid	6.08
Triethanolamine, 99%	3.42
D.I. Water	6.08
Propylene Glycol	6.08
Total	100.00

PROCEDURE

Combine and mix components in the order listed above.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, yellow liquid
pH, as is	9.0 – 10.0
Viscosity at 25°C, cps	150 – 350
Density, lbs/gal	8.24
Flash Point, °F (PMCC)	>201

STORAGE/STABILITY

4 weeks at 25°C	Stable
4 weeks at 4°C	Stable
4 weeks at 50°C	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Dilute concentrate by adding 1 part concentrate to 9 parts water.

EXTERNAL COMMENT

A 1:1 dilution or 1:3 dilution in water yields a thick product.

REGISTERED TRADEMARKS OF STEPAN COMPANY

NINOL®
STEPOSOL®

FOR ADDITIONAL ASSISTANCE

For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe).

For ordering assistance, call our Customer Service Department at 1-800-457-7673.

Nothing contained herein grants or extends a license, expressed or implied, in connection with patents, issued or pending, of the manufacturer or others. The information contained herein is based on the manufacturer's own study and the works of others. The manufacturer makes no warranties, expressed or implied, as to the accuracy, completeness, or adequacy of the information contained herein. The manufacturer shall not be liable (regardless of fault) to the vendee's employees, or anyone for any direct, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy or furnishing of such information.

Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Multipurpose Cleaner

WITH STEPOSOL® SB-W

This multipurpose cleaner can be used on all surfaces for removing dirt, dust and grease.

FORMULATION

Ingredients	% by Weight
Phase 1	
NINOL® 11-CM	82.14
STEPOSOL® SB-W*	17.86
Phase 2	
Blend from Phase 1	24.19
Butyl Carbitol Solvent (Dow Chemical) Butoxydiglycol	4.81
Versene 100 (Dow Chemical) Tetrasodium EDTA	3.21
D.I. Water	q.s. to 100
Total	100.00

PROCEDURE

Blend STEPOSOL® SB-W and NINOL® 11-CM together with mixing to form Phase 1 Blend. Then take the required amount of blend and add all other components as listed, mixing until clear after each addition.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, yellow liquid
pH, as is	9.5 – 11.0
Viscosity at 25°C, cps	10 – 50
Density, lbs/gal	8.23
Solids, %	22 – 25
Flash Point, °F (PMCC)	>171

STORAGE/STABILITY

1 month at 25°C	Stable
1 month at 50°C	Stable
1 month at 4°C	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Spray on surface and let stand for several seconds. Wipe away with cloth. No water needed.

EXTERNAL COMMENT

*Using either STEPOSOL SB-D or STEPOSOL SB-W will produce differences in color and odor. STEPOSOL SB-D will produce a lighter color and STEPOSOL SB-W will produce a lower odor.

REGISTERED TRADEMARKS OF STEPAN COMPANY

NINOL®

STEPOSOL®

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL. 60093
800-745-7837

Laundry Pre-Spotter

WITH STEPOSOL® SB-D

This formulation can be used to pre-treat stains. It improves the removal of oily and particulate soil.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SB-D	56.0
BIO-SOFT® N25-7	19.0
BIO-SOFT® N25-3	19.0
Ethanol	4.0
D.I. Water	2.0
Total	100.00

PROCEDURE

Mix ingredients in order listed with vigorous agitation.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, amber liquid
pH, as is	8
Viscosity at 25°C, cps	12
Density, lbs/gal	7.59
Solids, %	94
Flash Point, °F (PMCC)	114

STORAGE/STABILITY

5 weeks at 25°C (77°F)	Stable
5 weeks at 4°C (39°F)	Stable
5 weeks at 40°C (104°F)	Stable
5 weeks at 50°C (122°F)	Stable
Freeze/Thaw, 5 cycles	Pass

INSTRUCTIONS FOR USE

Dilution to 1:10 gives opaque liquid. Spray onto fabric directly with a hand pump-style sprayer, making sure to cover entire spot. Launder as usual.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®
BIO-SOFT®

FOR ADDITIONAL ASSISTANCE

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL. 60093
800-745-7837

Concrete Cleaner

with STEPOSOL® SC

Removes soil from untreated concrete surfaces.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SC	90.00
BIO-SOFT® EC-690	10.00
Fragrance, if desired	Q.S.
Total	100.00

PROCEDURE

Combine ingredients in any order and mix until homogeneous.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, yellow liquid
pH, 5% in ethanol	6.1
Viscosity at 25°C, cps	<100
Density, lbs/gal	8.04
Solids, %	54.7
Flash point, °F (PMCC)	142

STORAGE/STABILITY

3 months at Room Temperature	Stable
4 weeks at 4°C (39°F)	Stable
4 weeks at 40°C (104°F)	Stable
4 weeks at 50°C (122°F)	Stable
Freeze/Thaw, 3 cycles	Pass

INSTRUCTIONS FOR USE

Apply to surface with a spray nozzle or cloth and wipe clean. For use on untreated concrete. May attack paint on concrete surfaces. Package in PET or fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

EXTERNAL COMMENT

BIO-SOFT® N91-7 may also be used in this formulation.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®
BIO-SOFT®

FOR ADDITIONAL ASSISTANCE

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL. 60093
800-745-7837

Concrete Oil Stain Remover

FORMULATION

Ingredients	% by Weight
CITRUSoy High Flash	50.00
Technical Grade d-Limonene	25.00
C 12-15, 9 mole Ethoxylated Alcohol Surfactant	25.00
Total	100.00

PROCEDURE

Mix solvents well, then add solvent blend to surfactant.

PHYSICAL PROPERTIES

Product will have a slight golden color with a citrus fragrance.

NOTES

Product can not be diluted with water, separation may occur. Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Product will rinse with water. Apply to concrete, scrub, rinse with concentrated force of water.

This formulation is intended as a starting point, or as a source of inspiration to begin work formulating a product of this type. We fully expect our customers to make modifications and improvements to these formulations to enhance their performance.

We do not warrant this formulation. It is believed to be accurate at time of printing. It is the responsibility of the user to determine the suitability, performance attributes and any liabilities that may be associated with the manufacture of this product. This formulary is not intended to be construed as a permission or a license agreement to manufacture any products that may be protected by any patents of any kind.

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Courtesy of:

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

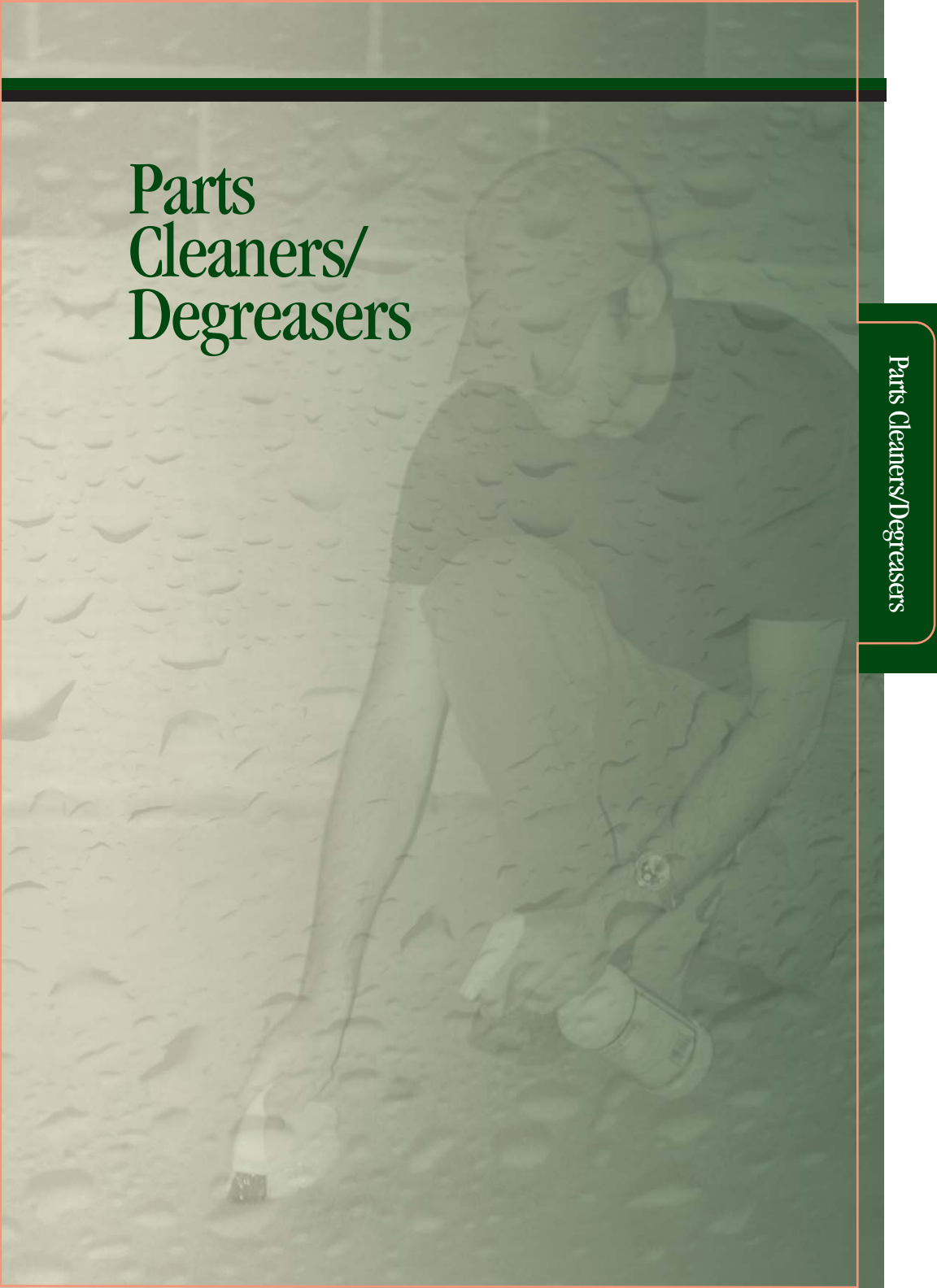
863-294-8483

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www.floridachemical.com

Parts Cleaners/ Degreasers

Parts Cleaners/Degreasers



Parts Washer Solvent

with STEPOSOL® SC and STEPOSOL® SB-W

These solvents can be used to clean industrial parts, such as motors and windings. This formulation can be used to remove grease, oil and other tough soils.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SC	60.00
STEPOSOL® SB-W	25.00
BIO-SOFT® N1-7	10.00
d-Limonene, Technical Grade (Florida Chemical)	5.00
Total	100.00

PROCEDURE

Add components in the order listed above while mixing.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, yellow liquid
pH, 10% in IPA	6.5 – 8.0
Viscosity at 25°C, cps	<100
Solids, %	62 – 68
Density, lbs/gal	7.90
Flash point, °F (PMCC)	146

STORAGE/STABILITY

4 weeks at 25°C	Stable
4 weeks at 40°C	Stable
4 weeks at 50°C	Stable
4 weeks at 4°C	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Dip parts in reservoir containing the solvent. Parts can also be wiped/sprayed with the solvent. Rinse if desired.

EXTERNAL COMMENT

For optimal performance, use at or above 25°C. If solvent freezes, allow to come to room temperature and mix. PET or fluorinated HDPE containers are recommended for packaging. Parts washer components (such as gaskets, seals, hoses, filter cartridges, etc.) should be tested for compatibility with the formula before use.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®

BIO-SOFT®

FOR ADDITIONAL ASSISTANCE

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For ordering assistance, call our Customer Service Department at 1-800-457-7673.

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Degreaser/Cleaner

FORMULATION

Ingredients	% by Weight
Soy methyl ester	5-35.00
Dodecylbenzenesulfonic acid	5-10.00
Linear alcohol ethoxylate (6-10 mole)	5-10.00
Sodium zylene sulfonate	As needed to bring pH to 4 or higher
Plant water	Q.S. to make 100.00
Total	100.00

PROCEDURE

Add each ingredient to tank in sequence. Blend as each ingredient is added. Adjust pH as needed. Be sure to package blend in plastic drum, lined metal drum or other appropriate container.

BioSpan makes no implied or real warranties that these formulations will perform for specific uses. They are provided as a basic foundation for complete formulation development only.

Courtesy of:

BioSpan Technologies

P.O. Box 4222

Ballwin, MO 63022

800-730-8980

shel@biospantech.com

Parts Cleaner/Degreaser

FORMULATION

Ingredients	% by Weight
High Flash	90-100.00
Optional	
C 12-15, 9 mole Ethoxylated Alcohol Surfactant	0-10.00
Total	100.00

PROCEDURE

In no particular order, mix solvents well.

PHYSICAL PROPERTIES

Product will have a slight golden color with a citrus fragrance.

NOTES

Finished product flash point should be >140°F. Package in epoxy/phenolic-lined steel drums.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Surfactant is optional, depending on product performance requirements.

This formulation is intended as a starting point, or as a source of inspiration to begin work formulating a product of this type. We fully expect our customers to make modifications and improvements to these formulations to enhance their performance.

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Courtesy of:

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Floating Lift Station Degreaser

FORMULATION

Ingredients	% by Weight
CITRUSoy High Flash	70.00
Technical Grade d-Limonene	30.00
Total	100.00

PROCEDURE

In no particular order, mix solvents well.

PHYSICAL PROPERTIES

Product will have a slight golden color with a citrus fragrance.

NOTES

Package in epoxy/phenolic-lined steel drums.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Product will rinse with water.

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351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Heavy Duty Degreaser

with STEPOSOL® SB-D

Can be used at full strength to remove oil and dirt from many surfaces.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SB-D	20.00
NINOL® 11-CM	20.00
MAKON® 8	10.00
BIO-TERGE® PAS-8S	10.00
D.I. Water	q.s. to 100
Total	100.00

PROCEDURE

Combine first three ingredients and mix until clear. Add water and BIO-TERGE® PAS-8S to mixture at the same time. Mix until clear.

PHYSICAL PROPERTIES

Appearance at 25°C	clear, yellow liquid
pH at 25°C, as is	9.0 – 10.5
Viscosity at 25°C, cps	2000 – 3000
Density, lbs/gal	8.23
Solids, %	52 – 54
Flash point, °F (PMCC)	>201

STORAGE/STABILITY

1 month at 25°C	Stable
1 month at 50°C	Stable
1 month at 4°C	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Spray onto surface and let stand for several seconds. Wipe away with cloth. No water needed.

REGISTERED TRADEMARKS OF STEPAN COMPANY

BIO-TERGE®
MAKON®
NINOL®
STEPOSOL®

FOR ADDITIONAL ASSISTANCE

For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe).

For ordering assistance, call our Customer Service Department at 1-800-457-7673.

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Animal Fat Degreaser/Grease Trap Opener

FORMULATION

Ingredients	% by Weight
CITRUSoy High Flash	25.00
Technical Grade d-Limonene	75.00
Total	100.00

PROCEDURE

In no particular order, mix well.

PHYSICAL PROPERTIES

Product will have a slight golden color with a citrus fragrance.

NOTES

Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use.

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Courtesy of:

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351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Engine Degreaser/High Pressure Chamber Washer Degreaser

FORMULATION

Ingredients	% by Weight
Soy methyl ester	50.00
Ethyl lactate	10.00
Dibutyl ether	5.00
Ethoxylated nonyl phenol	5.00
Defoamer	3.00
Mineral oil	27.00
Total	100.00

PROCEDURE

Combine and mix ingredients in an explosion-proof environment. Mixture is flammable.

DIRECTIONS FOR USE

Use at a 15%-30% concentration with water. Do not exceed temperature of 160°F. Let circulate for 30 minutes. Rinse parts with clean water after removal from chamber cleaner. Solution may be reused.

BioSpan makes no implied or real warranties that these formulations will perform for specific uses. They are provided as a basic foundation for complete formulation development only.

Courtesy of:

BioSpan Technologies

P.O. Box 4222

Ballwin, MO 63022

800-730-8980

shel@biospantech.com

Graffiti Removers

High Flash Soyate-Based Graffiti Remover

for indoor use

FORMULATION

Ingredients	% by Weight
Methyl soyate	62-65.00
Ethyl lactate	25.00
ViscoAbit (React)	5.00
NP9 or equivalent	4.95
Fragrance (test for longevity)	0-3.00
BHT	.05
Total	100.00

PROCEDURE

The ethyl lactate is added to the methyl soyate, then added to the surfactant. Blend for 20 minutes.

These formulas are presented for informational purposes only. Soy Technologies, LLC. makes no claims as to their accuracy, performance, safety nor suitability for any application. It is the responsibility of the formulator to follow all local regulations and laws governing the manufacture, safe handling and disposal of product based on this formula. The presentation of this formula is not intended to be construed as a permission or a license agreement to manufacture any products that may be protected by any patents of any kind. Soy Technologies, LLC. accepts no liability for damages resulting from the manufacture and usage of products based on the formula presented.

Courtesy of:

Soy Technologies, Inc.

1405 Poinsettia Drive, Unit 12

Delray Beach, FL 33444

561-266-8868

Fax: 561-266-8878

High Flash Soyate-Based Graffiti Remover

for outdoor use

FORMULATION

Ingredients	% by Weight
Methyl soyate	52-55.00
NMP	20.00
Ethyl lactate	15.00
ViscoAbit (React)	5.00
NP9 or equivalent	4.95
Fragrance (test for longevity)	0-3.00
BHT	.05
Total	100.00

PROCEDURE

Add ethyl lactate to the methyl soyate, then add to the surfactant. Blend for 20 minutes.

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Courtesy of:

Soy Technologies, Inc.

1405 Poinsettia Drive, Unit 12

Delray Beach, FL 33444

561-266-8868

fax: 561-266-8878

Graffiti Remover

thick gel

FORMULATION

Ingredients	% by weight
VertecBio Gold™ #5	85.00
BIO-SOFT® N1-7	10.00
Methocel™ 311	5.00
Total	100.00

PROCEDURE

Mix all other ingredients then add Methocel™ powder into ambient temperature liquid until a consistent dispersion is obtained. Continue to agitate until gel is achieved.

NOTES

Methocel™ percentage can be reduced to achieve thinner gel consistency. See reference section page for suppliers of BIO-SOFT® N1-7 and Methocel™ 311.

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Courtesy of:

Vertec BioSolvents, Inc.

1441 Branding Lane, Suite 100

Downers Grove, IL 60515

630-960-0600

www.vertecbiosolvents.com

Adhesive Removers



Floor Mastic Remover

FORMULATION

Ingredients	% by Weight
CITRUSoy High Flash	50.00
Citrus Burst 2	50.00
Total	100.00

PROCEDURE

In no particular order, mix solvents well.

PHYSICAL PROPERTIES

Product will have a slight golden color with a pleasant citrus fragrance.

Flash point °F >140 °F

NOTES

Citrus Burst 2 contains a surfactant package, making this product water rinsable. Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Product will rinse with water. Apply product to mastic, allow for dwell time to loosen mastic. Remove with floor scrubber or rinse with water.

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Courtesy of:

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Liquid Adhesive Remover

FORMULATION

Ingredients	% by Weight
CITRUSoy High Flash	65.00
Technical Grade d-Limonene	20.00
C 12-15, 9 mole Ethoxylated Alcohol Surfactant	10.00
Lemon-Lime Grade d-Limonene	5.00
Total	100.00

PROCEDURE

Mix solvents first, and then add surfactant to solvent mix.

PHYSICAL PROPERTIES

Product will have a slight golden color with a citrus/lemon-lime fragrance.

NOTES

Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Product will rinse with water.

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Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Floor Mastic Remover (High Flash Formula)

FORMULATION

Ingredients	% by Weight
CITRUSoy Super High Flash	90.00
C 12-15, 9 mole Ethoxylated Alcohol Surfactant	10.00
Total	100.00

PROCEDURE

In no particular order, mix solvents well.

PHYSICAL PROPERTIES

Product will have a slight golden color with pleasant citrus fragrance.

Flash point, °F >140 °F

NOTES

Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Product will rinse with water. Apply product to mastic, allow for dwell time to loosen mastic. Remove with floor scrubber or rinse with water.

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Courtesy of:

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

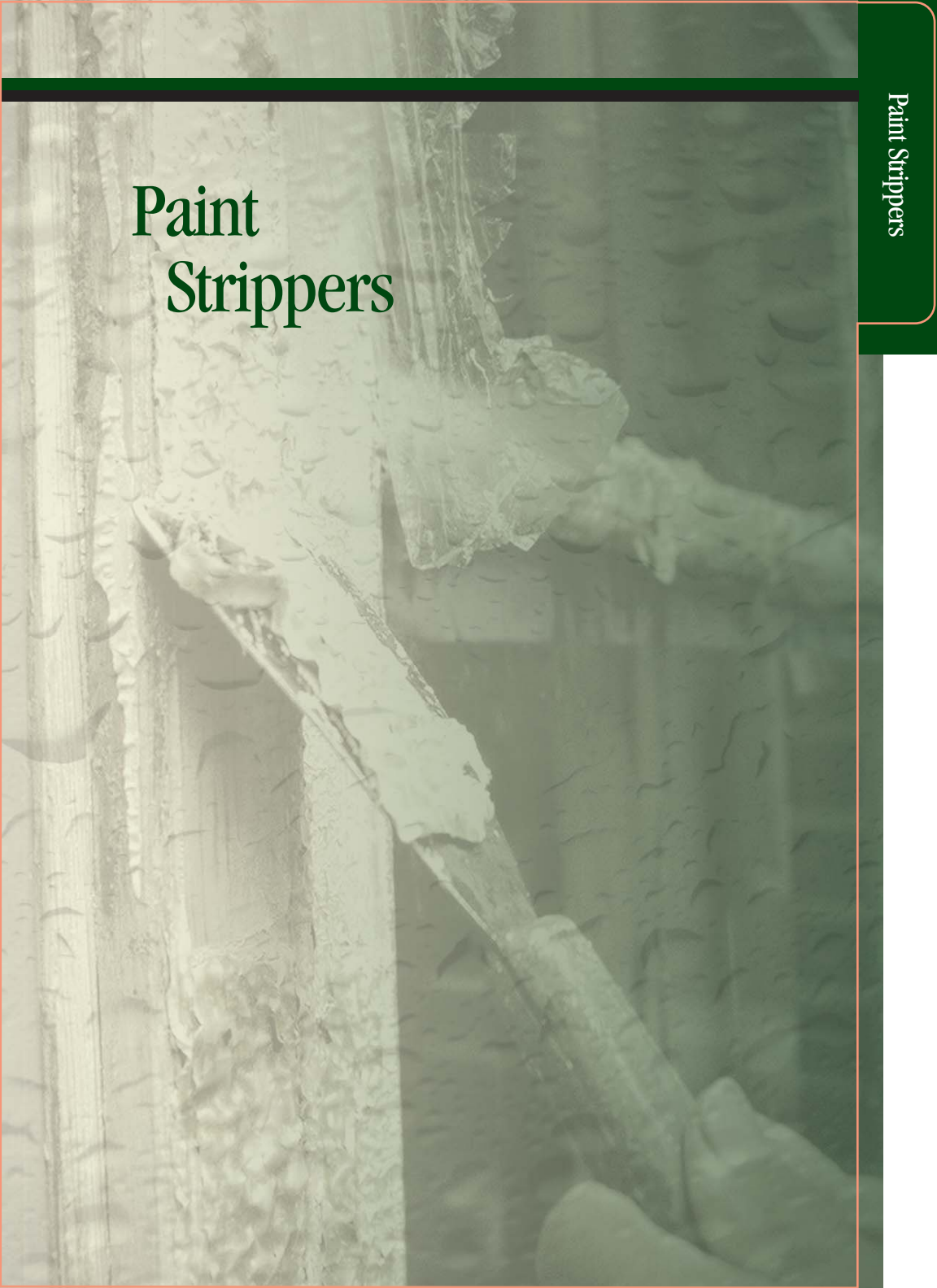
Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Paint Strippers



Formulation A – Thick Paint Stripper

FORMULATION

Ingredients	% by Weight
Vertec Gold™ 50/50	74.00
Additional Soy methyl ester	11.00
Surfactant	
Nonyl phenol Ethoxylate (6 mole)	6.00
Thickener	
Klucel-H or Methocel 311	6.00
Fragrance	3.00
Total	100.00

PROCEDURE

Combine and mix ingredients in order listed.

PHYSICAL PROPERTIES

Dark golden thick gel.

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Courtesy of:

Vertec BioSolvents, Inc.

1441 Branding Lane, Suite 100

Downers Grove, IL 60515

630-960-0600

www.vertecbiosolvents.com

Formulation B – Paint Stripper

FORMULATION

Ingredients	% by Weight
Vertec Gold™ 50/50	74.00
Additional Soy methyl ester	14.00
Surfactant	
Tergitol® 15-S-59	6.00
Thickener	
Klucel-H or Methocel 311	6.00
Total	100.00

PROCEDURE

Combine and mix ingredients in order listed.

PHYSICAL PROPERTIES

Golden paste

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Downers Grove, IL 60515

630-960-0600

www.vertecbiosolvents.com

Formulation D – Paint Stripper

FORMULATION

Ingredients	% by Weight
Vertec Gold™ 50/50	40.00
Vertec	20.00
DBE	35.00
Dimethyl glutarate	
Dimethyl adipate	
Dimethyl succinate	
Thickener	5.00
Klucel-H or Methocel 311	
Total	100.00

PROCEDURE

Combine and mix ingredients in order listed.

PHYSICAL PROPERTIES

Light golden paste, heavy viscosity, mild odor.

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Courtesy of:

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1441 Branding Lane, Suite 100

Downers Grove, IL 60515

630-960-0600

www.vertecbiosolvents.com

Varnish Remover

with STEPOSOL® SC

This solvent can be used for stripping varnish from surfaces.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SC	50.00
Technical Grade d-Limonene (Florida Chemical)	46.00
Ethanol	4.00
Total	100.00

PROCEDURE

Combine ingredients in the order listed. Mix well.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, yellow liquid
pH, 10% in IPA	7.0 – 8.0
Viscosity at 25°C, cps	>100
Density, lbs/gal	7.50
Solids, %	24 – 28
Flash point, °F (PMCC)	91

STORAGE/STABILITY

4 weeks at 25°C	Stable
4 weeks at 4°C (39°F)	Stable
4 weeks at 40°C (104°F)	Stable
4 weeks at 50°C (122°F)	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Apply to the surface and scrape away varnish.

EXTERNAL COMMENT

Product may darken if exposed to heat. Ross Miles Foam Tests: No foam was observed.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®

FOR ADDITIONAL ASSISTANCE

For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe).

For ordering assistance, call our Customer Service Department at 1-800-457-7673.

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Ink Cleaners

Ink Cleaners

Printing Ink Cleaner

FORMULATION

Ingredients	% by Weight
VertecBio ethyl lactate	30.00
Technical grade d'Limonene	60.00
E-Z-Mulse	10.00
Total	100.00

PROCEDURE

Combine and mix ingredients in order listed.

NOTES

This formulation is ideal for all types of offset printing and letterpress inks. It is also effective for removing screenprinting inks, graphics inks and pad printing inks. A water rinse can be used after cleaning. Formulation dries without leaving a sticky film or residue.

See reference section for suppliers of d'Limonene and E-Z-Mulse.

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Courtesy of:

Vertec BioSolvents, Inc.

1441 Branding Lane, Suite 100

Downers Grove, IL 60515

630-960-0600

www.vertecbiosolvents.com

Screen Printing Ink Cleaner – Textile Inks

with STEPOSOL® SC

A surfactant is added to give good water rinsability to the cleaner after ink has been emulsified. It can also be used to reduce residues, making equipment or screen ready for immediate use.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SC	85.00
BIO-SOFT® EC-690	15.00
Total	100.00

PROCEDURE

Combine ingredients in any order and mix until homogeneous.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear yellow liquid
PH, 5% in ethanol	6.0
Viscosity at 25°, cps	<100
Density, lbs/gal	8.06
Solids, %	56.5
Flash Point, °F (PMCC)	122

STORAGE/STABILITY

3 months at Room Temperature	Stable
4 weeks at 4°C (39°F)	Stable
4 weeks at 40°C (104°F)	Stable
4 weeks at 50°C (122°F)	Stable
Freeze/Thaw, 3 cycles	Pass

INSTRUCTIONS FOR USE

Package in PET or fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

EXTERNAL CONTENT

BIO-SOFT® N1-7 may also be used in this formulation.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®
BIO-SOFT®

FOR ADDITIONAL ASSISTANCE

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Printing Ink Cleaner – Graphics and Sign Inks

FORMULATION

Ingredients	% by Weight
VertecBio Gold™ #2	64.00
DBE	20.00
Dimethyl glutarate	
Dimethyl adipate	
Dimethyl succinate	
BIO-SOFT® N1-7	12.00
Technical grade d'Limonene for fragrance	4.00
Total	100.00

PROCEDURE

Mix in any order.

NOTES

Package in PET or fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

See reference section page for supplies of DBE, d-Limonene and BIO-SOFT® N1-7.

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Courtesy of:

Vertec BioSolvents, Inc.

1441 Branding Lane, Suite 100

Downers Grove, IL 60515

630-960-0600

www.vertecbiosolvents.com

Asphalt & Form Release

Asphalt & Form Release

Form Release Agent (Premium)

WITH STEPOSOL® SB-D

Use to facilitate release of products from molding.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SB-D	85.00
STEPAN® GMO	15.00
Total	100.00

PROCEDURE

Mix ingredients in order listed with vigorous agitation.

PHYSICAL PROPERTIES

Appearance at 25°C	Clear, yellow liquid
pH, 50% in IPA	8
Viscosity at 25°C, cps	30
Density, lbs/gal	7.41
Solids, %	99
Flash point, °F (PMMC)	>204

STORAGE/STABILITY

6 weeks at Room Temperature	Stable
4 weeks at 4°C (39°F)	Stable
4 weeks at 50°C (122°F)	Stable
Freeze/Thaw, 4 cycles	Passed

INSTRUCTIONS FOR USE

Use as is. Spray into mold to facilitate release.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®
STEPAN®

FOR ADDITIONAL ASSISTANCE

For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe).

For ordering assistance, call our Customer Service Department at 1-800-457-7673.

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Tar-Asphalt Remover (High-Flash Formula)

FORMULATION

Ingredients	% by Weight
CITRUSoy Super High Flash	90.00
C 12-15 9 mole Ethoxylated Alcohol Surfactant	10.00
Total	100.00

PROCEDURE

Combine and mix ingredients in any order.

PHYSICAL PROPERTIES

Product will have a slight golden color with pleasant citrus fragrance.

NOTES

Finish product flash point should be >140°F. Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

INSTRUCTIONS FOR USE

Best practice is to shake or agitate prior to use. Product will rinse with water.

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Courtesy of:

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432, USA

863-294-8483

fax 863-294-7783

www.floridachemical.com

A close-up photograph of a hand being washed under a running faucet. The water is clear and creates a spray of droplets. The background is a light-colored, textured surface, possibly a sink or countertop, with many small water droplets scattered across it. The overall lighting is soft and natural.

Hand Cleaners

Waterless Hand Cleaner

WITH STEPOSOL® SB-W

Waterless Hand Cleaner used to remove grease, dirt and ink from hands without the use of soap.

FORMULATION

Ingredients	% by Weight
Phase 1	
STEPOSOL® SB-W*	34.00
NINOL® 40-CO	4.50
MAKON® 10	10.90
Oleic Acid	1.70
Solulan 75 (Amerchol) PEG 75 Lanolin	0.50
Phase 2	
Triethanolamine, 99%	0.40
Preservative	q.s.
D.I. water	q.s. to 100
Total	100.00

PROCEDURE

Combine ingredients of phase 1 and heat to 70°C with mixing. In a separate vessel, combine triethanolamine and water of phase 2 and heat to 70°C with mixing. Add phase 2 to phase 1 at 70°-75°C while mixing. Mix for 30 minutes and maintain temperature. Cool to room temperature with mixing. Add preservative when temperature is below 50°C.

PHYSICAL PROPERTIES

Appearance at 25°C	Yellow, opaque ringed gel
pH at 50°C, as is	7.0-8.0
Viscosity at 25°C, cps	Gel
Density, lbs/gal	6.82
Flash Point, °F (PMCC)	>201

STORAGE/STABILITY

1 month at 25°C	Stable
1 month at 50°C	Stable
1 month at 4°C	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Apply a small amount to hands. Rub and wipe off and/or rinse.

*Using either STEPOSOL SB-D or STEPOSOL SB-W will produce differences in color or odor. STEPOSOL SB-D will produce a lighter color and STEPOSOL SB-W will produce a lower odor.

REGISTERED TRADEMARKS OF STEPAN COMPANY

MAKON®

NINOL®

STEPOSOL®

FOR ADDITIONAL ASSISTANCE

For applications or product handling assistance, call our Technical Service Department at 1-800-745-7837 (U.S.) or 011-334-76-505-100 (Europe).

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

Thick Gel Waterless Hand Cleaner

WITH STEPOSOL® SC

Waterless hand cleaner is used for cleaning dirt, oil, ink and other soils from hands.

FORMULATION

Ingredients	% by Weight
STEPOSOL® SC	75.00
BIO-SOFT® N1-7	15.00
Viscos ABIT NATURAL (REACT, Inc.)	10.00
Total	100.00

PROCEDURE

Combine STEPOSOL® SC and BIO-SOFT® N1-7. While mixing heat to 155°F-165°F. Charge Viscos ABIT NATURAL at 155°F-165°F and mix. Reduce temperature and continue to mix until cooled.

PHYSICAL PROPERTIES

Appearance at 25°C	Opaque solid
pH at 50°C	8.0-9.0
Viscosity at 25°C, cps	Gel

STORAGE/STABILITY

4 weeks at Room Temperature	Stable
4 weeks at 4°C (39°F)	Stable
4 weeks at 40°C (104°F)	Stable
4 weeks at 50°C (122°F)	Stable
Freeze/Thaw, 10 cycles	Pass

INSTRUCTIONS FOR USE

Apply to hands and rub until clean. Wipe hands. No water needed.

EXTERNAL COMMENT

Product may darken if heat is applied for extended periods of time.

REGISTERED TRADEMARKS OF STEPAN COMPANY

STEPOSOL®
BIO-SOFT®

FOR ADDITIONAL ASSISTANCE

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Courtesy of:

Stepan Company
22 West Frontage Rd.
Northfield, IL 60093
800-745-7837

CITRUSoy Hand Cleaner

FORMULATION

Ingredients	% by Weight
CITRUSoy High Flash	25.00
E-Z-Mulse	45.00
Glycerin	1.00
Lanolin	3.00
Water	26.00
Total	100.00

PROCEDURE

Mix E-Z-Mulse, Glycerin and Lanolin well. Then add CITRUSoy High Flash to mixture. Mix well, then add water and continue mixing until complete.

PHYSICAL PROPERTIES

Gel with light citrus fragrance.

NOTES

Package in epoxy/phenolic-lined steel drums. Smaller packaging will require fluorinated HDPE containers. Paneling and solvent migration can occur in many bottle types.

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Courtesy of:

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE

Winter Haven, FL 33881-9432

863-294-8483

fax 863-294-7783

www.floridachemical.com

Hand Cleaner

FORMULATION

Ingredients	% by Weight
Part A	
Soy methyl ester	30.00
Ethylene glycol monostearate	10.00
Calsuds CD-6 (Pilot Chemical)	11.00
Deodorized lanolin	0.50
Part B	
Propylene glycol	5.00
Glycerin	0.50
Water	42.50
Preservative and fragrance	0.50
Total	100.00

PROCEDURE

Heat parts A and B separately. Add part A to part B while stirring.
Stir until cool.

BioSpan makes no implied or real warranties that these formulations will perform for specific uses. They are provided as a basic foundation for complete formulation development only.

Courtesy of:

BioSpan Technologies

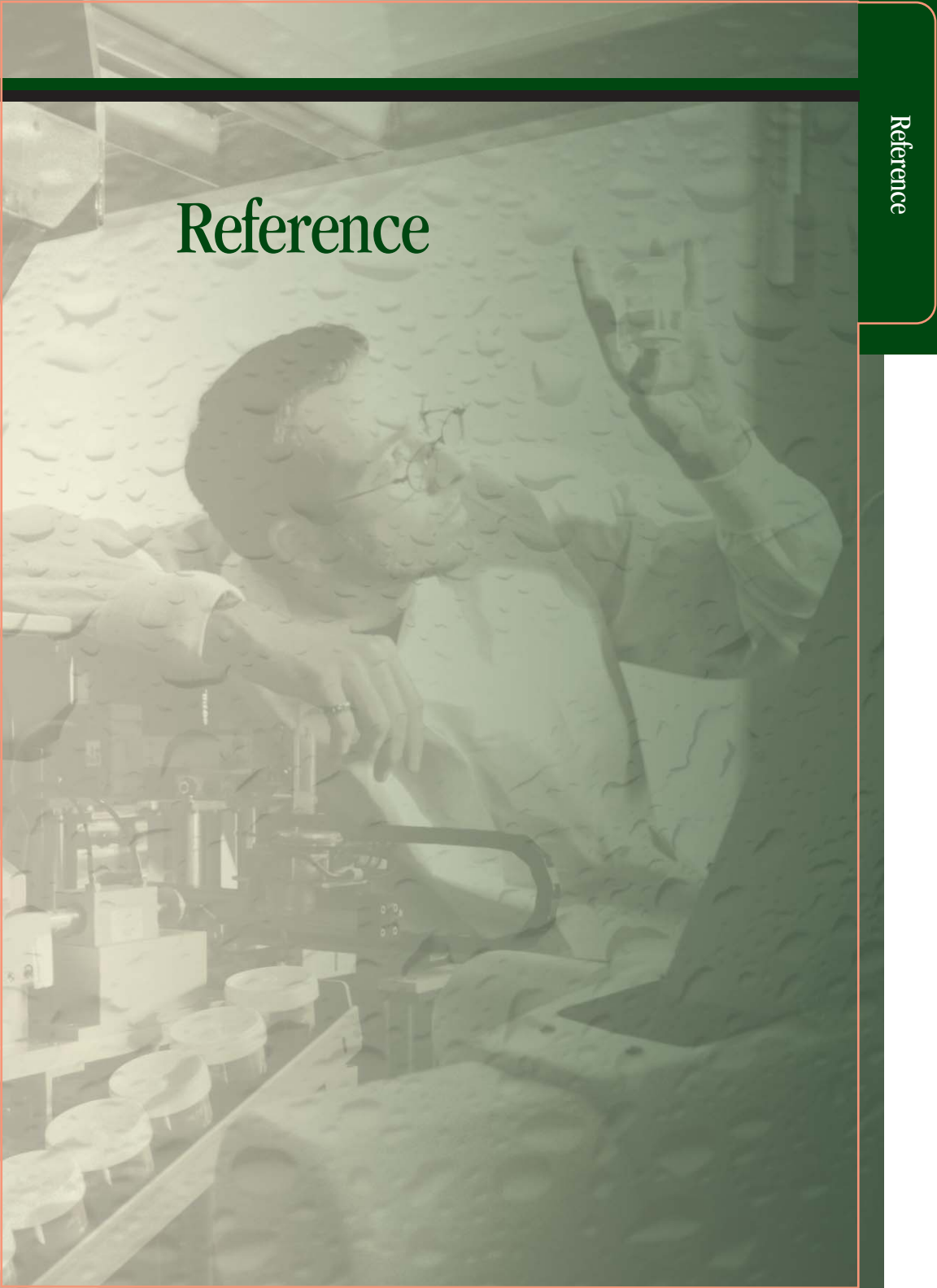
P.O. Box 4222

Ballwin, MO 63022

800.730.8980

shel@biospantech.com

Reference



Component Suppliers

SOLVENTS

Component Product

STEPSOL® SB-W, SB-D, SC

CITRUSoy™ High Flash, SuperHigh Flash

d-Limonene

Citrus Burst™ 2

Vertec Gold™, Vertec BioEthyl Lactate

Methyl Soyate, Soy Methyl Esters

Supplier

Stepan Company

Florida Chemical Co. Inc.

Florida Chemical Co. Inc.

Florida Chemical Co. Inc.

Vertec BioSolvents

Ag Environmental Products,

Archer Daniels, Midland Co.,

Cargill Technical Oils, Chemol Company, Inc.,

Columbus Foods Company, Lambent Technologies Corp.,

Procter & Gamble Chemicals, Stepan Company and

West Central Cooperative

SURFACTANTS

Component Product

NINOL® 11-CM, 40-CO

Bio-Soft® N25-7, Bio-Soft® N25-3,

Bio-Soft® EC-690, Bio-Soft® N1-7

MAKON® 8

BIO-TERGE® PAS-85

Tergitol® 15-5-59

E-Z-Mulse™

Supplier

Stepan Company

Stepan Company

Stepan Company

Stepan Company

Dow Chemical Company

Florida Chemical Co. Inc.

THICKENERS

Component Product

Methocel™ 311

Viscos ABIT NATURAL™

Supplier

Dow Chemical Company

Northern Technologies Intl. (React, Inc.)

Contacts

Ag Environmental Products, LLC.

P.O. Box 2047
12700 West Dodge Rd.
Omaha, NE 68103
800-599-9209

Archer Daniels Midland Co.

P.O. Box 1470
Decatur, IL 62525
800-510-2178

Cargil Technical Oils

P.O. Box 5700, MS 66
Minneapolis, MN 55440
800-842-3631

Chemol Company

2300 Randolph Avenue
Greensboro, NC 27416
336-333-3050

Columbus Foods Company

730 N. Albany Avenue
Chicago, IL 60612
800-322-6457

Dow Chemical Company

2030 Dow Center
Midland, MI 48674
989-832-1000

Florida Chemical Company, Inc.

351 Winter Haven Blvd. NE
Winter Haven, FL 33881-9432
863-294-8483

Lambent Technologies Corp.

(a division of Petroferm, Inc.)
3938 Porett Drive
Gurnee, IL 60031
800-432-7187

Northern Technologies International

6680 N. Highway 49
Lino Lakes, MN 55014
651-784-1250

Proctor & Gamble Chemicals

11530 Reed Hartman Highway
Cincinnati, OH 45241
800-477-8899

Stepan Company

22 West Frontage Rd.
Northfield, IL 60093
800-457-7673

Vertec BioSolvents, Inc.

1441 Branding Lane, Suite 100
Downers Grove, IL 60515
630-960-0600

West Central Cooperative

406 West First Street
Ralston, IA 51459
800-843-4769



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To learn more about methyl soyate,
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