Methyl Soyate

The Formulary Guide for

a biobased alternative to petrochemicals

To learn more about methyl soyate, contact the United Soybean Board.

www.unitedsoybean.org/newuses
newuses@unitedsoybean.org
Methyl soyate: The natural solution for safer solvents.

As companies strive to improve safety for their employees and meet regulatory requirements, interest in bio-based products that can replace petroleum-based chemicals is growing. Methyl soyate, a bio-based 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.

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>METHOD*</th>
<th>LIMITS</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Glycerin</td>
<td>ASTM D 6584</td>
<td>0.240 max</td>
<td>% mass</td>
</tr>
<tr>
<td>Free Glycerin</td>
<td>ASTM D 6584</td>
<td>0.02 max</td>
<td>% mass</td>
</tr>
<tr>
<td>Flash Point (Closed Cup)</td>
<td>ASTM D 93</td>
<td>100.0 min</td>
<td>°C</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>ASTM D 445</td>
<td>3.9 to 4.3</td>
<td>mm²</td>
</tr>
<tr>
<td>Acid Number</td>
<td>ASTM D 664</td>
<td>0.25 max</td>
<td>% mass</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 1298</td>
<td>0.885-0.905</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>ASTM D 2709</td>
<td>0.5 max</td>
<td>% mass</td>
</tr>
<tr>
<td>Cloud point</td>
<td>ASTM D 2500</td>
<td>2 max</td>
<td>°C</td>
</tr>
<tr>
<td>Kauri-Butanol Value</td>
<td>ASTM D 1133</td>
<td>57 min</td>
<td></td>
</tr>
<tr>
<td>Iodine Value</td>
<td>ASTM D 1959</td>
<td>130 min</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>ASTM D 5191</td>
<td>1.0 max</td>
<td>mm Hg</td>
</tr>
<tr>
<td>VOC level</td>
<td>EPA method 24 or South Coast Air Quality District Method 304</td>
<td>50 max</td>
<td>g/l</td>
</tr>
</tbody>
</table>

*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

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

PROCEDURE

Combine and mix components in the order listed above.

PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance at 25°C</td>
<td>Clear, yellow liquid</td>
</tr>
<tr>
<td>pH, as is</td>
<td>9.0 – 10.0</td>
</tr>
<tr>
<td>Viscosity at 25°C, cps</td>
<td>150 – 350</td>
</tr>
<tr>
<td>Density, lbs/gal</td>
<td>8.24</td>
</tr>
<tr>
<td>Flash Point, °F (PMCC)</td>
<td>&gt;201</td>
</tr>
</tbody>
</table>

STORAGE/STABILITY

<table>
<thead>
<tr>
<th>Condition</th>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 weeks at 25°C</td>
<td>Stable</td>
</tr>
<tr>
<td>4 weeks at 4°C</td>
<td>Stable</td>
</tr>
<tr>
<td>4 weeks at 50°C</td>
<td>Stable</td>
</tr>
<tr>
<td>Freeze/Thaw, 10 cycles</td>
<td>Pass</td>
</tr>
</tbody>
</table>

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®
STEPOSOLO®
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

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

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®

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
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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SB-D</td>
<td>56.0</td>
</tr>
<tr>
<td>BIO-SOFT® N25-7</td>
<td>19.0</td>
</tr>
<tr>
<td>BIO-SOFT® N25-3</td>
<td>19.0</td>
</tr>
<tr>
<td>Ethanol</td>
<td>4.0</td>
</tr>
<tr>
<td>D.I. Water</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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

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
Concrete Cleaner

with STEPOSOL® SC

Removes soil from untreated concrete surfaces.

**FORMULATION**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SC</td>
<td>90.00</td>
</tr>
<tr>
<td>BIO-SOFT® EC-690</td>
<td>10.00</td>
</tr>
<tr>
<td>Fragrance, if desired</td>
<td>Q.S.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**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

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
Concrete Oil Stain Remover

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy High Flash</td>
<td>50.00</td>
</tr>
<tr>
<td>Technical Grade d-Limonene</td>
<td>25.00</td>
</tr>
<tr>
<td>C 12-15, 9 mole Ethoxylated Alcohol Surfactant</td>
<td>25.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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
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**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SC</td>
<td>60.00</td>
</tr>
<tr>
<td>STEPOSOL® SB-W</td>
<td>25.00</td>
</tr>
<tr>
<td>BIO-SOFT® N1-7</td>
<td>10.00</td>
</tr>
<tr>
<td>d-Limonene, Technical Grade (Florida Chemical)</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**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

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
# Degreaser/Cleaner

## FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soy methyl ester</td>
<td>5-35.00</td>
</tr>
<tr>
<td>Dodecylbenzenesulfonic acid</td>
<td>5-10.00</td>
</tr>
<tr>
<td>Linear alcohol ethoxylate (6-10 mole)</td>
<td>5-10.00</td>
</tr>
<tr>
<td>Sodium zylene sulfonate</td>
<td>As needed to bring pH to 4 or higher</td>
</tr>
<tr>
<td>Plant water</td>
<td>Q.S. to make 100.00</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Flash</td>
<td>90-100.00</td>
</tr>
<tr>
<td><strong>Optional</strong></td>
<td></td>
</tr>
<tr>
<td>C 12-15, 9 mole Ethoxylated Alcohol Surfactant</td>
<td>0-10.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.00</td>
</tr>
</tbody>
</table>

**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.
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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any
patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the
user. It is the responsibility of the user to follow all local regulations and laws governing the
manufacture, sale, handling and disposal of the above mentioned solvents. Accordingly, Florida
Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance
upon this information.

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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy High Flash</td>
<td>70.00</td>
</tr>
<tr>
<td>Technical Grade d-Limonene</td>
<td>30.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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
Heavy Duty Degreaser

with STEPOSOL® SB-D

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

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SB-D</td>
<td>20.00</td>
</tr>
<tr>
<td>NINOL® 11-CM</td>
<td>20.00</td>
</tr>
<tr>
<td>MAKON® 8</td>
<td>10.00</td>
</tr>
<tr>
<td>BIO-TERGE® PAS-8S</td>
<td>10.00</td>
</tr>
<tr>
<td>D.I. Water q.s.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance at 25°C</td>
<td>clear, yellow liquid</td>
</tr>
<tr>
<td>pH at 25°C, as is</td>
<td>9.0 – 10.5</td>
</tr>
<tr>
<td>Viscosity at 25°C, cps</td>
<td>2000 – 3000</td>
</tr>
<tr>
<td>Density, lbs/gal</td>
<td>8.23</td>
</tr>
<tr>
<td>Solids, %</td>
<td>52 – 54</td>
</tr>
<tr>
<td>Flash point, °F (PMCC)</td>
<td>&gt;201</td>
</tr>
</tbody>
</table>

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.

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
Animal Fat Degreaser/Grease Trap Opener

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy High Flash</td>
<td>25.00</td>
</tr>
<tr>
<td>Technical Grade d-Limonene</td>
<td>75.00</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
</tr>
</tbody>
</table>

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.

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

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
Engine Degreaser/High Pressure Chamber Washer Degreaser

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soy methyl ester</td>
<td>50.00</td>
</tr>
<tr>
<td>Ethyl lactate</td>
<td>10.00</td>
</tr>
<tr>
<td>Dibutyl ether</td>
<td>5.00</td>
</tr>
<tr>
<td>Ethoxylated nonyl phenol</td>
<td>5.00</td>
</tr>
<tr>
<td>Defoamer</td>
<td>3.00</td>
</tr>
<tr>
<td>Mineral oil</td>
<td>27.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl soyate</td>
<td>62-65.00</td>
</tr>
<tr>
<td>Ethyl lactate</td>
<td>25.00</td>
</tr>
<tr>
<td>ViscoAbit (React)</td>
<td>5.00</td>
</tr>
<tr>
<td>NP9 or equivalent</td>
<td>4.95</td>
</tr>
<tr>
<td>Fragrance (test for longevity)</td>
<td>0-3.00</td>
</tr>
<tr>
<td>BHT</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl soyate</td>
<td>52-55.00</td>
</tr>
<tr>
<td>NMP</td>
<td>20.00</td>
</tr>
<tr>
<td>Ethyl lactate</td>
<td>15.00</td>
</tr>
<tr>
<td>ViscoAbit (React)</td>
<td>5.00</td>
</tr>
<tr>
<td>NP9 or equivalent</td>
<td>4.95</td>
</tr>
<tr>
<td>Fragrance (test for longevity)</td>
<td>0-3.00</td>
</tr>
<tr>
<td>BHT</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

PROCEDURE

Add ethyl lactate to the methyl soyate, then add 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
Graffiti Remover

thick gel

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VertecBio Gold™ #5</td>
<td>85.00</td>
</tr>
<tr>
<td>BIO-SOFT® N1-7</td>
<td>10.00</td>
</tr>
<tr>
<td>Methocel™ 311</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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 these formulas and they are 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 guide 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. Vertec BioSolvents, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Vertec BioSolvents, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above mentioned solvents. Please refer to the Material Safety Data Sheets of all materials prior to use. Accordingly, Vertec BioSolvents, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

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**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy High Flash</td>
<td>50.00</td>
</tr>
<tr>
<td>Citrus Burst 2</td>
<td>50.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**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.

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy High Flash</td>
<td>65.00</td>
</tr>
<tr>
<td>Technical Grade d-Limonene</td>
<td>20.00</td>
</tr>
<tr>
<td>C 12-15, 9 mole Ethoxylated Alcohol Surfactant</td>
<td>10.00</td>
</tr>
<tr>
<td>Lemon-Lime Grade d-Limonene</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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
Floor Mastic Remover (High Flash Formula)

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy Super High Flash</td>
<td>90.00</td>
</tr>
<tr>
<td>C 12-15, 9 mole Ethoxylated Alcohol Surfactant</td>
<td>10.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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
   Klucerl-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.

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 these formulas and they are 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 guide 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. Vertec BioSolvents, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Vertec BioSolvents, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above mentioned solvents. Please refer to the Material Safety Data Sheets of all materials prior to use. Accordingly, Vertec BioSolvents, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertec Gold™ 50/50</td>
<td>74.00</td>
</tr>
<tr>
<td>Additional Soy methyl ester</td>
<td>14.00</td>
</tr>
<tr>
<td>Surfactant</td>
<td></td>
</tr>
<tr>
<td>Tergitol® 15-S-59</td>
<td>6.00</td>
</tr>
<tr>
<td>Thickener</td>
<td></td>
</tr>
<tr>
<td>Klucel-H or Methocel 311</td>
<td>6.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

PROCEDURE

Combine and mix ingredients in order listed.

PHYSICAL PROPERTIES

Golden paste

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 these formulas and they are 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 guide 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. Vertec BioSolvents, Inc., assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Vertec BioSolvents, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Please refer to the Material Safety Data Sheets of all materials prior to use. Accordingly, Vertec BioSolvents, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

Courtesy of:

Vertec BioSolvents, Inc.
1441 Branding Lane, Suite 100
Downers Grove, IL 60515
630-960-0600
www.vertecbiosolvents.com
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.

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 these formulas and they are 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 guide 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. Vertec BioSolvents, Inc., assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Vertec BioSolvents, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above mentioned solvents. Please refer to the Material Safety Data Sheets of all materials prior to use. Accordingly, Vertec BioSolvents, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

Courtesy of:

Vertec BioSolvents, Inc.
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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SC</td>
<td>50.00</td>
</tr>
<tr>
<td>Technical Grade d-Limonene</td>
<td>46.00</td>
</tr>
<tr>
<td>(Florida Chemical)</td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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
Ink Cleaners
Printing Ink Cleaner

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VertecBio ethyl lactate</td>
<td>30.00</td>
</tr>
<tr>
<td>Technical grade d’Limonene</td>
<td>60.00</td>
</tr>
<tr>
<td>E-Z-Mulse</td>
<td>10.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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 these formulas and they are believed to be accurate at the 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 guide 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. Vertec BioSolvents, Inc., assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Vertec BioSolvents, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Please refer to the Material Safety Data Sheets of all materials prior to use. Accordingly, Vertec BioSolvents, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SC</td>
<td>85.00</td>
</tr>
<tr>
<td>BIO-SOFT® EC-690</td>
<td>15.00</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
</tr>
</tbody>
</table>

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°C, 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

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
Printing Ink Cleaner – Graphics and Sign Inks

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VertecBio Gold™ #2</td>
<td>64.00</td>
</tr>
<tr>
<td>DBE</td>
<td>20.00</td>
</tr>
<tr>
<td>Dimethyl glutarate</td>
<td></td>
</tr>
<tr>
<td>Dimethyl adipate</td>
<td></td>
</tr>
<tr>
<td>Dimethyl succinate</td>
<td></td>
</tr>
<tr>
<td>BIO-SOFT® N1-7</td>
<td>12.00</td>
</tr>
<tr>
<td>Technical grade d’Limonene for fragrance</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

PROCEDURE

Mix in any order.

NOTES

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


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 these formulas and they are 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 guide 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. Vertec BioSolvents, Inc., assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Vertec BioSolvents, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Please refer to the Material Safety Data Sheets of all materials prior to use. Accordingly, Vertec BioSolvents, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

Courtesy of:

Vertec BioSolvents, Inc.
1441 Branding Lane, Suite 100
Downers Grove, IL  60515
630-960-0600
www.vertecbiosolvents.com
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

STEPSOL®
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.
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
Tar-Asphalt Remover (High-Flash Formula)

**FORMULATION**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy Super High Flash</td>
<td>90.00</td>
</tr>
<tr>
<td>C 12-15 9 mole Ethoxylated Alcohol Surfactant</td>
<td>10.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**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.

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.

Florida Chemical Company, Inc. assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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
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

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

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°C-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 ringing 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).

   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
Thick Gel Waterless Hand Cleaner

WITH STEPOSOL® SC

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

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SC</td>
<td>75.00</td>
</tr>
<tr>
<td>BIO-SOFT® N1-7</td>
<td>15.00</td>
</tr>
<tr>
<td>Viscos ABIT NATURAL (REACT, Inc.)</td>
<td>10.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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

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
CITRUSoy Hand Cleaner

FORMULATION

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITRUSoy High Flash</td>
<td>25.00</td>
</tr>
<tr>
<td>E-Z-Mulse</td>
<td>45.00</td>
</tr>
<tr>
<td>Glycerin</td>
<td>1.00</td>
</tr>
<tr>
<td>Lanolin</td>
<td>3.00</td>
</tr>
<tr>
<td>Water</td>
<td>26.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

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.

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.

Florida Chemical Company, Inc., assumes no liability if any of the above formulations fall within any patents or intellectual property that is not the property of Florida Chemical Company, Inc., or the user. It is the responsibility of the user to follow all local regulations and laws governing the manufacture, sale, handling and disposal of the above-mentioned solvents. Accordingly, Florida Chemical Company, Inc., will not be responsible for damages resulting from the use or reliance upon this information.

**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

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part A</strong></td>
<td></td>
</tr>
<tr>
<td>Soy methyl ester</td>
<td>30.00</td>
</tr>
<tr>
<td>Ethylene glycol monostearate</td>
<td>10.00</td>
</tr>
<tr>
<td>Calsuds CD-6 (Pilot Chemical)</td>
<td>11.00</td>
</tr>
<tr>
<td>Deodorized lanolin</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Part B</strong></td>
<td></td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>5.00</td>
</tr>
<tr>
<td>Glycerin</td>
<td>0.50</td>
</tr>
<tr>
<td>Water</td>
<td>42.50</td>
</tr>
<tr>
<td>Preservative and fragrance</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.00</td>
</tr>
</tbody>
</table>

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
## Component Suppliers

### SOLVENTS

<table>
<thead>
<tr>
<th>Component Product</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPOSOL® SB-W, SB-D, SC</td>
<td>Stepan Company</td>
</tr>
<tr>
<td>CITRUSoy™ High Flash, SuperHigh Flash</td>
<td>Florida Chemical Co. Inc.</td>
</tr>
<tr>
<td>d-Limonene</td>
<td>Florida Chemical Co. Inc.</td>
</tr>
<tr>
<td>Citrus Burst™ 2</td>
<td>Florida Chemical Co. Inc.</td>
</tr>
<tr>
<td>Vertec Gold™, Vertec BioEthyl Lactate</td>
<td>Vertec BioSolvents</td>
</tr>
<tr>
<td>Methyl Soyate, Soy Methyl Esters</td>
<td>Ag Environmental Products, Archer Daniels, Midland Co., Cargill Technical Oils, Chemol Company, Inc., Columbus Foods Company, Lambent Technologies Corp., Procter &amp; Gamble Chemicals, Stepan Company and West Central Cooperative</td>
</tr>
</tbody>
</table>

### SURFACTANTS

<table>
<thead>
<tr>
<th>Component Product</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>NINOL® 11-CM, 40-CO</td>
<td>Stepan Company</td>
</tr>
<tr>
<td>MAKON® 8</td>
<td>Stepan Company</td>
</tr>
<tr>
<td>BIO-TERGE® PAS-85</td>
<td>Stepan Company</td>
</tr>
<tr>
<td>Tergitol® 15-5-59</td>
<td>Dow Chemical Company</td>
</tr>
<tr>
<td>E-Z-Mulse™</td>
<td>Florida Chemical Co. Inc.</td>
</tr>
</tbody>
</table>

### THICKENERS

<table>
<thead>
<tr>
<th>Component Product</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methocel™ 311</td>
<td>Dow Chemical Company</td>
</tr>
<tr>
<td>Viscos ABIT NATURAL™</td>
<td>Northern Technologies Intl. (React, Inc.)</td>
</tr>
<tr>
<td>Company Name</td>
<td>Address</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Ag Environmental Products, LLC.</td>
<td>P.O. Box 2047</td>
</tr>
<tr>
<td>Archer Daniels Midland Co.</td>
<td>P.O. Box 1470</td>
</tr>
<tr>
<td>Cargil Technical Oils</td>
<td>P.O. Box 5700, MS 66</td>
</tr>
<tr>
<td>Chemol Company</td>
<td>2300 Randolph Avenue</td>
</tr>
<tr>
<td>Columbus Foods Company</td>
<td>730 N. Albany Avenue</td>
</tr>
<tr>
<td>Dow Chemical Company</td>
<td>2030 Dow Center</td>
</tr>
<tr>
<td>Florida Chemical Company, Inc.</td>
<td>351 Winter Haven Blvd. NE</td>
</tr>
<tr>
<td>Lambent Technologies Corp. (division of Petroferm, Inc.)</td>
<td>3938 Porett Drive</td>
</tr>
<tr>
<td>Northern Technologies International</td>
<td>6680 N. Highway 49</td>
</tr>
<tr>
<td>Proctor &amp; Gamble Chemicals</td>
<td>11530 Reed Hartman Highway</td>
</tr>
<tr>
<td>Stepan Company</td>
<td>22 West Frontage Rd.</td>
</tr>
<tr>
<td>Vertec BioSolvents, Inc.</td>
<td>1441 Branding Lane, Suite 100</td>
</tr>
<tr>
<td>West Central Cooperative</td>
<td>406 West First Street</td>
</tr>
</tbody>
</table>
Methyl soyate: The natural solution for safer solvents.

As companies strive to improve safety for their employees and meet regulatory requirements, interest in bio-based products that can replace petroleum-based chemicals is growing. Methyl soyate, a bio-based 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

Disclaimer: The United Soybean Board is not responsible for the accuracy or efficacy of any of the formulations listed in this Guide. The guide is intended for general informational use only. Do not rely on the information set forth herein for any purpose. The information is given without limitation, the manufacturer or producer of methyl soyate. The United Soybean Board disclaims any liability, express or implied, based on any use of any information or formulation set forth herein. No representation is made as to accuracy, performance or characteristics with respect to any information or formulation set forth herein.
Methyl Soyate

The Formulary Guide for a biobased alternative to petrochemicals

To learn more about methyl soyate, contact the United Soybean Board.

www.unitedsoybean.org/newuses
newuses@unitedsoybean.org