Shiva Performance Materials is a part of Shiva Pharmachem Limited and to learn more about, please visit www.shivapharmachem.com

Shiva’s product portfolio of resins, solutions and acrylic emulsions is one of the broadest in the industry and can deliver a "total package" that is more sustainable, cost-efficient and meet customer preferences around the world. We design resin systems with tomorrow's environmental requirements in mind, by an awareness of the need for continuity, and by a strong sense of responsibility. We have an outstanding sustainability record in polymers that we continue to improve each day.

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**SPCRYL PRODUCT LINE**

Solid Resins

Resin Solutions & High Performance Resin Solutions

RC Emulsions (Rheology Controlled)
- Film Forming
- Non-Film Forming

Colloidal Emulsions
Wax Emulsion & Zinc Oxide Solution

**Plant Location | INDIA**

SHIVA PERFORMANCE MATERIALS

Plant at Kharkhadi
Located 25kms from Vadodara, Gujarat
PRODUCTION SITE

- State-of-the-art manufacturing facility spread over 28,000 sq.mtrs.
- Continuous production of Solid Resins using in house technology.
- Batch processes for Emulsion Polymerization.
- In house application laboratory for hand holding & troubleshooting.
- Dedicated department for EHS - Environment, Health & Safety.
- Compliant with all Regulations for all major countries.

TECHNICAL CAPABILITIES

<table>
<thead>
<tr>
<th>INSTRUMENTS</th>
<th>CAPABILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSC</td>
<td>For Measuring Glass transition temperature (Tg)</td>
</tr>
<tr>
<td>GPC</td>
<td>For Measuring Molecular Weight</td>
</tr>
<tr>
<td>MFI</td>
<td>For Measuring Melt flow index</td>
</tr>
<tr>
<td>GC</td>
<td>For measuring Residual Monomers</td>
</tr>
<tr>
<td>VISCOMETER</td>
<td>For measuring Viscosity of Polymers</td>
</tr>
<tr>
<td>HEADSPACE</td>
<td>For measuring Volatile Organic Compound (VOC)</td>
</tr>
<tr>
<td>PARTICLE ANALYZER</td>
<td>For measuring Particle Size of Emulsions through laser diffraction</td>
</tr>
</tbody>
</table>
SOLID RESINS
SPCRYL LOP
SPCRYL LOP-H
SPCRYL LOFG
SPCRYL MOFG
SPCRYL PGR
SPCRYL HOFG
SPCRYL 160
SPCRYL 170
SPCRYL LOP is a low molecular weight acrylic resin for use in high solids water-based overprint varnishes.

**Key features & Benefits**
- High gloss
- High solids/low viscosity solutions
- Excellent resolubility

**Physical Properties**
- Appearance: Flakes
- Non-Volatile: >99%
- Molecular Weight, Mw: 2,000 GPC
- Acid Number (mgKOH/gm): 230
- Glass Transition Temp, (Tg): 55°C DSC

**Typical solution**
<table>
<thead>
<tr>
<th>SPCRYL LOP</th>
<th>50.0 parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia 28%</td>
<td>14.0 parts</td>
</tr>
<tr>
<td>Water</td>
<td>36.0 parts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0 parts</strong></td>
</tr>
</tbody>
</table>

| pH               | 8.4 |
| viscosity (cps 30°C) | 5500 |

**Applications**
SPCRYL LOP is an acrylic resin designed to be used as an extender in water-based overprint varnishes to produce a high gloss finish.

**Safety**
When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note
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SPCRYL LOP-H

Description

SPCRYL LOP-H is a low molecular weight acrylic resin for use in high solids water based overprint varnishes.

Key features & Benefits

- High gloss
- Low viscosity solution with High solids
- Excellent re-solubility

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Flakes</td>
</tr>
<tr>
<td>Non-Volatile</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Molecular Weight, Mw</td>
<td>2,000 GPC</td>
</tr>
<tr>
<td>Acid Number (mgKOH/gm)</td>
<td>235 - 245</td>
</tr>
<tr>
<td>Glass Transition Temp., (Tg)</td>
<td>75 - 90°C DSC</td>
</tr>
</tbody>
</table>

Typical solution

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCRYL LOP-H</td>
<td>45.0 parts</td>
</tr>
<tr>
<td>Ammonia 28%</td>
<td>13.0 parts</td>
</tr>
<tr>
<td>Water</td>
<td>42.0 parts</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 parts</td>
</tr>
</tbody>
</table>

Solids/Viscosity of SPCRYL LOP-H

Ammonia neutralized at pH = 8.5

Applications

SPCRYL LOP-H is an acrylic resin designed to be used as an extender in water-based overprint varnishes to produce a high gloss finish.

Safety

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Note

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SPCRYL LOFG is a mid range molecular weight acrylic resin for water-based overprint varnishes and fluid inks.

Key features & Benefits
- High Solids varnishes at low viscosity
- High gloss
- Broad compatibility
- Excellent transfer and printability
- Good Resolubility

Physical Properties
- Appearance: Flakes
- Non-Volatile: >99%
- Molecular Weight, Mw: 5,000 GPC
- Acid Number (mgKOH/gm): 215
- Glass Transition Temp., (Tg): 65° C DSC

Solids/Viscosity of SPCRYL LOFG
Ammonia neutralized at pH = 8.4

Typical solution

<table>
<thead>
<tr>
<th></th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCRYL LOFG</td>
<td>37.0</td>
</tr>
<tr>
<td>Ammonia 28%</td>
<td>10.0</td>
</tr>
<tr>
<td>water</td>
<td>53.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

| pH        | 8.5    |
| viscosity (cps 30°C) | 5500   |

Applications
SPCRYL LOFG is an acrylic resin designed to be used as an extender in overprint varnishes and inks and to produce water-based pigment dispersions.

As an extender it provides improved transfer and resolubility, as dispersion resin it provides good wetting properties for the manufacture of stable pigment dispersions.

Safety
When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note
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SPCRYL MOFG

Description

SPCRYL MOFG is an acrylic resin designed to be used as an extender in overprint varnishes and inks and to produce water based pigment dispersions.

Key features & Benefits

- Excellent color strength development
- Excellent transfer and printability
- Good gloss and holdout

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Flakes</td>
</tr>
<tr>
<td>Non-Volatile</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Molecular Weight, Mw</td>
<td>8,500 GPC</td>
</tr>
<tr>
<td>Acid Number (mgKOH/gm)</td>
<td>210</td>
</tr>
<tr>
<td>Glass Transition Temp., (Tg)</td>
<td>105° C DSC</td>
</tr>
</tbody>
</table>

Solids/Viscosity of SPCRYL MOFG

Ammonia neutralized at pH = 8.4

![Viscosity graph]

Typical solution

<table>
<thead>
<tr>
<th>Component</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCRYL MOFG</td>
<td>32.0</td>
</tr>
<tr>
<td>Ammonia 28%</td>
<td>8.50</td>
</tr>
<tr>
<td>Water</td>
<td>59.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>8.4</td>
</tr>
<tr>
<td>Viscosity (cps 30°C)</td>
<td>1750</td>
</tr>
</tbody>
</table>

Applications

SPCRYL MOFG is an acrylic resin designed to be used as an extender in overprint varnishes and inks and to produce water-based pigment dispersions. As an extender it provides improved transfer and re-solubility, as dispersion resin it provides good wetting properties for the manufacture of stable pigment dispersions.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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SPCRYL PGR

Description
SPCRYL PGR is an acrylic resin specially designed for making high quality resin-fortified emulsions. It is also used as an extender in overprint varnishes and inks, and also to produce high quality water-based pigment dispersions.

Key features & Benefits
- Making high quality emulsions
- Excellent rheology behaviour
- Gloss improvement
- Increase of transfer & resolubility
- Improvement of block & heat resistance

Physical Properties
- Appearance: Flakes
- Non-Volatile: >99%
- Molecular Weight, Mw: 8,500 GPC
- Acid Number (mgKOH/gm): 210
- Glass Transition Temp., (Tg): 105° C DSC

Solids/Viscosity of SPCRYL PGR
Ammonia neutralized at pH = 8.4

Applications
SPCRYL PGR is an acrylic resin designed to be used as an extender in overprint varnishes and inks and to produce water-based pigment dispersions. As an extender it provides improved transfer and re-solubility, as dispersion resin it provides good wetting properties for the manufacture of stable pigment dispersions.

Typical solution

| SPCRYL PGR | 32.0 parts |
| Ammonia 28% | 8.50 parts |
| water | 59.5 parts |
| Total | 100.0 parts |

| pH | 8.4 |
| viscosity (cps 30°C) | 1750 |

Safety
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Note
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SPCRYL HOFG

Description

SPCRYL HOFG is a high molecular weight acrylic resin use for water-based overprint varnishes and flexographic and gravure-printing inks.

Key features & Benefits

- Increase of transfer and resolubility
- Improvement of block and heat resistance
- Excellent print characteristics

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Flakes</td>
</tr>
<tr>
<td>Non-Volatile</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Molecular Weight, Mw</td>
<td>12,000 GPC</td>
</tr>
<tr>
<td>Acid Number (mgKOH/gm)</td>
<td>210</td>
</tr>
<tr>
<td>Glass Transition Temp., (Tg)</td>
<td>105°C DSC</td>
</tr>
</tbody>
</table>

Typical solution

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCRYL HOFG</td>
<td>30.0 parts</td>
</tr>
<tr>
<td>Ammonia 28%</td>
<td>08.0 parts</td>
</tr>
<tr>
<td>Water</td>
<td>62.0 parts</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 parts</td>
</tr>
</tbody>
</table>

Solids/Viscosity of SPCRYL HOFG

Ammonia neutralized at pH = 8.4

<table>
<thead>
<tr>
<th>Solids (wt%)</th>
<th>Viscosity (cps 30°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.0</td>
<td>2200</td>
</tr>
<tr>
<td>30.0</td>
<td>2600</td>
</tr>
<tr>
<td>31.0</td>
<td>2750</td>
</tr>
<tr>
<td>33.0</td>
<td></td>
</tr>
</tbody>
</table>

Applications

SPCRYL HOFG is an acrylic resin designed to be used as an extender in overprint varnishes and inks and to produce water-based pigment dispersions.

As an extender it provides improved transfer and re-solubility, as dispersion resin it provides good wetting properties for the manufacture of stable pigment dispersions.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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SPCRYL 160

**Description**

SPCRYL 160 is a high molecular weight acrylic resin designed to improve color and gloss of pigment dispersion without affecting stability of ink.

**Key features & Benefits**

- Increase Pigment dispersion
- Improvement in Color and strength
- Excellent Ink Stability

**Physical Properties**

- Appearance: Flakes
- Non-Volatile: >99%
- Molecular Weight, Mw: 16,000 GPC
- Acid Number (mgKOH/gm): 210
- Glass Transition Temp., (Tg): 100° C DSC

**Typical solution**

| SPCRYL 160 | 30.0 parts |
| Ammonia 28% | 8.00 parts |
| Water | 62.0 parts |
| Total | 100.0 parts |

| pH | 8.5 |
| Viscosity (cps 30°C) | 2700 |

**Solids/Viscosity of SPCRYL 160**

Ammonia neutralized at pH = 8.5

**Applications**

SPCRYL 160 provides improved pigment wetting, color strength and gloss compared to conventional dispersion resins. This allows for high solids, low viscosity pigment dispersion that have excellent rheology, flow and stability.

**Safety**

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

---

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SPCRYL 170

Description

SPCRYL 170 is a high molecular weight acrylic resin designed to improve color and gloss of pigment dispersion without affecting stability of ink.

Key features & Benefits

- Good viscosity stability
- Good pigment wetting and color development
- Good gloss and transparency

Physical Properties

- Appearance: Flakes
- Non-Volatile: >99%
- Molecular Weight, Mw: 17,000 GPC
- Acid Number (mgKOH/gm): 210
- Glass Transition Temp., (Tg): 120°C DSC

Solids/Viscosity of SPCRYL 170

Ammonia neutralized at pH = 8.5

Typical solution

<table>
<thead>
<tr>
<th>SPCRYL 170</th>
<th>25.7 parts</th>
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</thead>
<tbody>
<tr>
<td>Ammonia 28%</td>
<td>07.0 parts</td>
</tr>
<tr>
<td>Water</td>
<td>67.3 parts</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 parts</td>
</tr>
</tbody>
</table>

pH                8.5
viscosity (cps 30°C) 500

Applications

SPCRYL 170 is designed to produce high quality water-based pigment dispersions with good viscosity stability. It is specially effective with difficult pigments like calcium reds.

Safety

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RESIN SOLUTION

SPCRYL 50 ECO
SPCRYL 55 ECO
SPCRYL 75 ECO
SPCRYL 60 ECO
SPCRYL 61
SPCRYL 63
SPCRYL 50 ECO & SPCRYL 55 ECO

Description

SPCRYL 50 ECO is a low molecular weight resin solution of SPCRYL LOP for water-based overprint varnishes and inks

SPCRYL 55 ECO is a low molecular weight resin solution of SPCRYL LOP for water-based overprint varnishes and inks

Key features & Benefits

- High solids OPV
- High Gloss and Clarity
- Excellent Holdout
- Low VOC Solution

- High solids OPV
- High Gloss and Clarity
- Excellent Holdout
- Low VOC Solution

Physical Properties SPCRYL 50 ECO

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Clear Solution</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>50</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.4</td>
</tr>
<tr>
<td>Viscosity, (cps 30°C)</td>
<td>5500</td>
</tr>
<tr>
<td>Molecular Weight, (Mw)</td>
<td>2000 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>238</td>
</tr>
<tr>
<td>Glass Transition temperature (Tg)</td>
<td>56°C DSC</td>
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</table>

Physical Properties SPCRYL 55 ECO

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Clear Solution</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>55</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.4</td>
</tr>
<tr>
<td>Viscosity, (cps 30°C)</td>
<td>7500</td>
</tr>
<tr>
<td>Molecular Weight, (Mw)</td>
<td>2000 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>238</td>
</tr>
<tr>
<td>Glass Transition temperature (Tg)</td>
<td>56°C DSC</td>
</tr>
</tbody>
</table>

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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SPCRYL 75 ECO  STYRENE ACRYLIC RESIN SOLUTION

Description

SPCRYL 75 ECO is a mid molecular weight resin solution of SPCRYL LOFG for water-based overprint varnishes and inks

Key features & Benefits

- Low VOC solution
- Excellent water resistance
- Excellent block resistance
- Good Resolubility

Physical Properties SPCRYL 75 ECO

- Appearance: Clear Solution
- Non-Volatile % 33
- pH (30°C) 8.5
- Viscosity, (cps 30°C) 800
- Molecular Weight, (Mw) 5,500 GPC
- Acid Number(mg KOH/gm) 220
- Glass Transition temperature (Tg) 57°C DSC

Safety

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SPCRYL 60 ECO & SPCRYL 61

**Description**

SPCRYL 60 ECO is a mid molecular weight resin solution of SPCRYL MOFG for water-based overprint varnishes and inks

SPCRYL 61 is a customized mid molecular weight resin solution of SPCRYL MOFG for water-based overprint varnishes and inks

**Key features & Benefits**

- Broad range utility
- Balance of Gloss & Dispersion
- Very low VOC solution

-Broad range utility
- Balance of Gloss & Dispersion
- Very low VOC solution

**Physical Properties SPCRYL 60 ECO**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear Solution</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>34</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.4</td>
</tr>
<tr>
<td>Viscosity, (cps 30°C)</td>
<td>5500</td>
</tr>
<tr>
<td>Molecular Weight, (Mw)</td>
<td>8,500 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>215</td>
</tr>
<tr>
<td>Glass Transition temperature (Tg)</td>
<td>85°C DSC</td>
</tr>
</tbody>
</table>

**Physical Properties SPCRYL 61**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear Solution</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>34</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.4</td>
</tr>
<tr>
<td>Viscosity, (cps 30°C)</td>
<td>5200</td>
</tr>
<tr>
<td>Molecular Weight, (Mw)</td>
<td>8,500 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>215</td>
</tr>
<tr>
<td>Glass Transition temperature (Tg)</td>
<td>85°C DSC</td>
</tr>
</tbody>
</table>

**Safety**

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

**Note**

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL 63

STYRENE ACRYLIC RESIN SOLUTION

Description

SPCRYL 63 is a customized high molecular weight resin solution of SPCRYL HOFG for water-based overprint varnishes and inks

Key features & Benefits

- Low VOC Solution
- High quality dispersion
- Mainly for Printing Inks

Physical Properties SPCRYL 63

- Appearance: Clear Solution
- Non-Volatile % 30
- pH(30°C) 8.4
- Viscosity, (cps 30°C) 5000
- Molecular Weight, (Mw) 12,000 GPC
- Acid Number(mg KOH/gm) 213
- Glass Transition temperature (Tg) 73°C DSC

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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HIGH PERFORMANCE RESIN SOLUTIONS

SPCRYL 160EH
SPCRYL 160 MEA
SPCRYL 170E
SPCRYL 296
SPCRYL 396
SPCRYL 496
SPCRYL 160 EH is an ammonia based high performance dispersion resin solution for high concentrated pigment dispersions to be used in water based inks.

Key features & Benefits
- Higher concentrated dispersions
- Superior color development
- Pigment saving
- Excellent rheology & transfer
- Gloss and transparency

Applications
SPCRYL 160 EH is a high molecular weight, high acid value resin solution specifically designed to optimize the grinding of pigments while still offering excellent ink stability. Dispersions made with SPCRYL 160 EH exhibit excellent rheology properties.

This allows for higher pigment loadings, which are a trend in the industry. Due to its superior color development capability it is often possible to achieve equal color strength at reduced pigment.

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear Solution</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>34</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.5</td>
</tr>
<tr>
<td>Viscosity, (cps 30°C)</td>
<td>5000</td>
</tr>
<tr>
<td>Molecular Weight, (Mw)</td>
<td>16,000 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>220</td>
</tr>
<tr>
<td>Glass Transition temperature (Tg)</td>
<td>88°C DSC</td>
</tr>
</tbody>
</table>

International Listings
SPCRYL 160 EH is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability
In unopened packaging Shiva Pharmachem Limited guarantee's, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging
SPCRYL 160 EH is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note
The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL 160 MEA  HIGH PERFORMANCE DISPERSION

**Description**

SPCRYL 160ME is a MEA based high performance dispersion resin solution for high concentrated pigment dispersions to be used in water based inks.

**Key features & Benefits**

- Very good dispersions
- Superior color development
- High pigment loading
- Excellent rheology & transfer
- Gloss and transparency
- Low viscosity

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Clear Solution</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>39</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.6</td>
</tr>
<tr>
<td>Viscosity, (cps 30°C)</td>
<td>5000</td>
</tr>
<tr>
<td>Molecular Weight, (Mw)</td>
<td>16,000 GPC</td>
</tr>
<tr>
<td>Acid Number(mg KOH/gm)</td>
<td>220</td>
</tr>
<tr>
<td>Glass Transition temperature (Tg)</td>
<td>86°C DSC</td>
</tr>
</tbody>
</table>

**Applications**

SPCRYL 160 MEA is a high molecular weight, high acid value resin solution specifically designed to optimize the grinding of pigments while still offering excellent ink stability.

Dispersions made with SPCRYL 160 MEA exhibit excellent rheology properties.

This allows for higher pigment loadings, which are a trend in the industry. Due to its superior color development capability it is often possible to achieve equal color strength at reduced pigment levels.

**International Listings**

SPCRYL 160 MEA is listed in the national inventories of all major markets. For further details, please contact the product manager.

**Storage and Stability**

In unopened packaging Shiva Pharmachem Limited guarantee's, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

**Standard Packaging**

SPCRYL 160 MEA is packed in 210kgs HDPE Drums / 1000kgs IBC.

**Safety**

*When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.*

**Note**

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SPCRYL 170 E

Description

SPCRYL 170 E is an ammonia based high performance dispersion resin solution for high concentrated pigment dispersions to be used in water based inks.

Key features & Benefits

- Higher Pigment Loading
- Superior color development
- Pigment savings
- Excellent rheology and transfer
- Gloss and transparency
- Improved stability with letdown emulsions

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear solution</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8 to 9</td>
</tr>
<tr>
<td>Non-Volatile</td>
<td>29 – 30 %</td>
</tr>
<tr>
<td>Molecular Weight, Mw</td>
<td>17,500 GPC</td>
</tr>
<tr>
<td>Viscosity, (30°C)</td>
<td>4000 – 6000 cps</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>220 - 240</td>
</tr>
<tr>
<td>Glass Transition Temp., (Tg)</td>
<td>100 - 105°C DSC</td>
</tr>
<tr>
<td>Freeze/thaw stable</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Typical formulations using SPCRYL 170 E

<table>
<thead>
<tr>
<th>Formulations</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithol Rubine 57:1</td>
<td>40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Phthal Blue 15:3</td>
<td>-</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>Carbon Black</td>
<td>-</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>SPCRYL 170 E</td>
<td>37.1</td>
<td>37.1</td>
<td>37.1</td>
</tr>
<tr>
<td>Antifoam</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Water</td>
<td>22.4</td>
<td>22.4</td>
<td>22.4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Applications

SPCRYL 170 E is a highest molecular weight, high acid value resin solution specifically designed to optimize the grinding of pigments while still offering excellent ink stability. Dispersions made with SPCRYL 170 E exhibit excellent rheology properties. This allows for higher pigment loadings, which are a trend in the industry. Due to its superior color development capability it is often possible to achieve equal color strength at reduced pigment levels.

International Listings

SPCRYL 170 E is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL 170 E is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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SPCRYL 296

Description

SPCRYL 296 is high performance dispersion resin solution designed to improve the viscosity and shock stability of highly pigmented dispersions.

Key features & Benefits

- Enables high pigmented low viscosity dispersions
- Improves storage and shock stability
- Reduces mill time

Physical Properties

- Appearance: Clear solution
- Non-Volatile: 35.5%
- Molecular Weight, Mw: 11,500 GPC
- Acid Number (mg KOH/gm): 141
- Glass Transition Temp., (Tg): 15°C DSC
- Viscosity, (cps30°C): 600
- pH (30°C): 8.7

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL 296 is packed in 210kgs HDPE Drums / 1000kgs IBC.

Typical formulations using SPCRYL 296

Pigment dispersions

The improved rheology characteristics of SPCRYL 296 resin enable the manufacture of high pigment loading, low viscosity organic color dispersions that are viscosity stable under normal storage conditions.

<table>
<thead>
<tr>
<th>Formulations</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithol Rubine 57:1</td>
<td>40.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Phthalzo Blue 15:3</td>
<td>-</td>
<td>46.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Diarylide yellow</td>
<td>-</td>
<td>-</td>
<td>44.0</td>
<td>-</td>
</tr>
<tr>
<td>Carbon Black</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>42.0</td>
</tr>
<tr>
<td>SPCRYL 296</td>
<td>27.6</td>
<td>31.8</td>
<td>30.4</td>
<td>38.7</td>
</tr>
<tr>
<td>Antifoam</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Water</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Pigment to binder ratio</td>
<td>4/1</td>
<td>4/1</td>
<td>4/1</td>
<td>4/1</td>
</tr>
</tbody>
</table>

Typical procedure

1) Pre-blend batch to uniformity using high speed dispersing equipment.
2) Feed blend into a small media mill.
3) Increase speed and disperse to required fineness of grind.

International Listings

SPCRYL 296 is listed in the national inventories of all major markets. For further details, please contact the product manager.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

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SPCRYL 396

HIGH PERFORMANCE RESIN SOLUTION FOR HIGHLY PIGMENTED DISPERSIONS

Description

SPCRYL 396 is high performance dispersion resin solution designed for high-concentrated dispersions, superior color development, excellent performance with critical pigments, high gloss and transparency.

Key features & Benefits

- Enables high pigmented low viscosity dispersions
- Superior color development
- High gloss & transparency

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear solution</td>
</tr>
<tr>
<td>Non-Volatile</td>
<td>35.5%</td>
</tr>
<tr>
<td>Molecular Weight, Mw</td>
<td>10,000 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH/gm)</td>
<td>185</td>
</tr>
<tr>
<td>Glass Transition Temp., (Tg)</td>
<td>91°C DSC</td>
</tr>
<tr>
<td>Viscosity (cps 30°C)</td>
<td>400</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee's, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL 396 is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL 496

Description
SPCRYL 496 is high performance dispersion resin solution designed for high-concentrated dispersions, superior color development, excellent performance with critical pigments, high gloss and transparency.

Key features & Benefits
- Enables high pigmented low viscosity dispersions
- Superior color development
- High gloss & transparency

International Listings
SPCRYL 496 is listed in the national inventories of all major markets. For further details, please contact the product manager.

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear solution</td>
</tr>
<tr>
<td>Non-Volatile</td>
<td>34.5%</td>
</tr>
<tr>
<td>Molecular Weight, Mw</td>
<td>5,500 GPC</td>
</tr>
<tr>
<td>Acid Number (mg KOH /gm)</td>
<td>178</td>
</tr>
<tr>
<td>Glass Transition Temp., (Tg)</td>
<td>58°C DSC</td>
</tr>
<tr>
<td>Viscosity (cps 30°C)</td>
<td>500</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Storage and Stability
In unopened packaging Shiva Pharmachem Limited guarantee's, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging
SPCRYL 496 is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note
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ACRYLIC EMULSION - FILM FORMING
SPCRYL EOFGL
SPCRYL EOFG
SPCRYL EHG
SPCRYL EHG-T
SPCRYL EFGH
SPCRYL EFG-T
SPCRYL EOFGL is a soft film forming acrylic polymer emulsion for water based film printing inks.

**Applications**

SPCRYL EOFGL is a soft film-forming rheology controlled emulsion for use in water-based flexographic and gravure inks on flexible film and foil. It has good adhesion to broad range of polyolefin films. SPCRYL EOFGL will improve rub resistance properties to paper and paperboard inks. SPCRYL EOFGL used as a universal film printing vehicle with the combination of properties for surface printing and lamination applications.

**Key features & Benefits**

- Water resistance
- Good gloss
- Rub resistance
- Excellent film wetting

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Semi translucent emulsion</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>48.0</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.3</td>
</tr>
<tr>
<td>Viscosity (cps 30°C)</td>
<td>900</td>
</tr>
<tr>
<td>Acid value on solid</td>
<td>63</td>
</tr>
<tr>
<td>Glass transition temperature</td>
<td>-25 to -35°C</td>
</tr>
<tr>
<td>Minimum film-forming temperature (°C)</td>
<td>&lt;7</td>
</tr>
</tbody>
</table>

**International Listings**

SPCRYL EOFGL is listed in the national inventories of all major markets. For further details, please contact the product manager.

**Storage and Stability**

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

**Standard Packaging**

SPCRYL EOFGL is packed in 210kgs HDPE Drums / 1000kgs IBC.

**Safety**

*When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.*

**Note**

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SPCRYL EOFG

Description

SPCRYL EOFG an acrylic polymer emulsion for use in water-based flexo / gravure reinks and overprint Varnishes

Key features & Benefits

- Excellent water and grease resistance
- Good gloss
- Low foaming
- Pigment wetting

Physical Properties

- Appearance: Semi translucent emulsion
- Non-Volatile %: 48.0
- pH (30°C): 8.1
- Viscosity (cps 30°C): 600
- Acid value on solid: 69
- Glass transition temperature: -15 to -25°C DCS
- Minimum film-forming temperature(°C): <5

Applications

SPCRYL EOFG is a film-forming emulsion for use in water-based flexographic and gravure inks and overprint varnishes providing excellent water and grease resistance. It may be used as a modifier to improve film forming properties of high MFT polymer emulsions.

International Listings

SPCRYL EOFG is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL EOFG is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL EHG

**Description**

SPCRYL EHG an acrylic polymer emulsion for use in water-based flexo / gravure inks and overprint Varnishes

**Key features & Benefits**

- Excellent film-forming
- Good gloss and transparency
- Excellent water and grease resistance
- Economical

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Semi translucent emulsion</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>45.0</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.3</td>
</tr>
<tr>
<td>Viscosity (cps 30°C)</td>
<td>1,250</td>
</tr>
<tr>
<td>Acid value on solid</td>
<td>63</td>
</tr>
<tr>
<td>Glass transition temperature</td>
<td>5 to 10°C DCS</td>
</tr>
<tr>
<td>Minimum film-forming temperature(°C)</td>
<td>&lt;5</td>
</tr>
</tbody>
</table>

**Storage and Stability**

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

**Standard Packaging**

SPCRYL EHG is packed in 210kgs HDPE Drums / 1000kgs IBC.

**Safety**

*When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.*

**Note**

*The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.*

**Applications**

SPCRYL EHG is a film forming emulsion designed to provide high gloss and clarity in water-based flexo and gravure inks and overprint varnishes. It may be used as a modifier to improve film forming properties of high MFT polymer emulsions.

**International Listings**

SPCRYL EHG is listed in the national inventories of all major markets. For further details, please contact the product manager.
SPCRYL EHG-T

Description

SPCRYL EFG-T an acrylic polymer emulsion for use in water-based flexo / gravure inks and overprint varnishes.

Key features & Benefits

- Excellent film-forming
- Good gloss and transparency
- Excellent water and grease resistance
- Economical

Applications

SPCRYL EHG-T is a film forming emulsion designed to provide high gloss and clarity in water-based flexo and gravure inks and overprint varnishes. It may be used as a modifier to improve film forming properties of high MFT polymer emulsions.

International Listings

SPCRYL EHG-T is listed in the national inventories of all major markets. For further details, please contact the product manager.

Physical Properties

- Appearance: Milky White Emulsion
- Non-Volatile % 800 – 1200 cps
- pH (30°C) 8.3
- Viscosity (cps 30°C) 45.0 + 1
- Acid value on solid 63
- Glass transition temperature 6 to 8°C DCS
- Minimum film-forming temperature(°C) <5

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL EHG-T is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photograhps, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL EFGH

Description

SPCRYL EFGH an acrylic polymer emulsion for use in water-based flexo / gravure inks and overprint varnishes.

Key features & Benefits

- Film-forming
- Good resolubility
- Excellent printability
- Excellent viscosity stability

Physical Properties

- Appearance: Semi translucent emulsion
- Non-Volatile %: 46.0
- pH (30°C): 8.1
- Viscosity (cps 30°C): 550
- Acid value on solid: 62
- Glass transition temperature: 25 to 30°C
- Minimum film-forming temperature (°C): 12

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL EFGH is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

Applications

SPCRYL EFGH is film-forming emulsion for use in water-based flexographic and gravure inks and overprint varnishes providing excellent gloss, leveling, resolubility and drying speed.

International Listings

SPCRYL EFGH is listed in the national inventories of all major markets. For further details, please contact the product manager.
SPCRYL EFG-T

Description

SPCRYL EFG-T an acrylic polymer emulsion for use in water-based flexo / gravure inks and overprint varnishes.

Key features & Benefits

- Film-forming
- Good resolubility
- Excellent printability
- Excellent viscosity stability

Applications

SPCRYL EFG-T is film-forming emulsion for use in water-based flexographic and gravure inks and overprint varnishes providing excellent gloss, leveling, resolubility and drying speed.

International Listings

SPCRYL EFG-T is listed in the national inventories of all major markets. For further details, please contact the product manager.

Physical Properties

- Appearance: Semi translucent emulsion
- Non-Volatile % 800 – 1200 cps
- pH (30°C) 8.0 – 8.5
- Viscosity (cps 30°C) 80 – 90
- Acid value on solid 47 – 49
- Glass transition temperature -2 to -5°C DCS

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL EFG-T is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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ACRYLIC EMULSION
- NON FILM FORMING
SPCRYL EOH
SPCRYL EO
SPCRYL EO-T
SPCRYL OPH
SPCRYL OPHF
SPCRYL 538A
# SPCRYL EOH

## Description

SPCRYL EOH is a styrene-acrylic co-polymer emulsion for use in water-based overprint varnishes and inks.

## Key features & Benefits

- Gloss and Clarity
- Good resolubility
- Fast dry
- Cost effective

## Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Semi translucent emulsion</td>
</tr>
<tr>
<td>Non-Volatile %</td>
<td>47.0</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>8.3</td>
</tr>
<tr>
<td>Viscosity (cps 30°C)</td>
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<tr>
<td>Acid value on solid</td>
<td>50</td>
</tr>
<tr>
<td>Glass transition temperature</td>
<td>100-110°C DCs</td>
</tr>
<tr>
<td>Minimum film-forming temperature (°C)</td>
<td>&gt;85</td>
</tr>
</tbody>
</table>

## Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

## Standard Packaging

SPCRYL EOH is packed in 210kgs HDPE Drums / 1000kgs IBC.

## Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

## Note

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# SPCRYL EO

## Description

SPCRYL EO is a styrene-acrylic copolymer emulsion for use in water-based overprint varnishes and inks.

## Key features & Benefits

- Excellent optical clarity
- High gloss
- Good heat resistance
- Fast drying

## Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
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<td>Non-Volatile %</td>
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<tr>
<td>pH (30°C)</td>
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<tr>
<td>Viscosity (cps 30°C)</td>
<td>260</td>
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<tr>
<td>Acid value on solid</td>
<td>76</td>
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<td>Glass transition temperature</td>
<td>100-110°C DCS</td>
</tr>
<tr>
<td>Minimum film-forming temperature(°C)</td>
<td>&gt;85</td>
</tr>
</tbody>
</table>

## Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

## Standard Packaging

SPCRYL EO is packed in 210kgs HDPE Drums / 1000kgs IBC.

## International Listings

SPCRYL EO is listed in the national inventories of all major markets. For further details, please contact the product manager.

## Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

## Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL EO-T

Description

SPCRYL EO-T is a styrene-acrylic copolymer emulsion for use in water-based overprint varnishes and inks.

Key features & Benefits

- Excellent optical clarity
- High gloss
- Film forming
- Oil/Grease Resistance

Physical Properties

- Appearance: Semi translucent emulsion
- Non-Volatile % 44.0
- pH (30°C) 8.3
- Viscosity (cps 30°C) 260
- Acid value on solid 76
- Glass transition temperature 100-110°C DCS
- Minimum film-forming temperature(°C) >85

Applications

SPCRYL EO-T is a non-film-forming emulsion developed for use in water-based overprint varnishes and flexographic and gravure inks, providing high heat seal and film release properties. The heat resistant properties may be further enhanced by the addition of Zinc Ammonium Carbonate solution. In overprint varnishes SPCRYL EO-T additionally provides gloss and optical clarity.

International Listings

SPCRYL EO-T is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee's, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL EO-T is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given therein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL OPH

Description

SPCRYL OPH is a high hiding styrene-acrylic co-polymer emulsion for use in water-based overprint varnishes and inks.

Key features & Benefits

- High color intensity
- Excellent printability
- Excellent resolubility

Physical Properties

- Appearance: Semi translucent emulsion
- Non-Volatile %: 50.0
- pH (30°C): 8.0
- Viscosity (cps 30°C): 2,500
- Acid value on solid: 31
- Glass transition temperature: 100-110°C DCS
- Minimum film-forming temperature (°C): >85

OPAQUE EMULSION

Applications

SPCRYL OPH is a controlled particle size emulsion designed to hide the brown background of natural kraft substrates. The use of SPCRYL OPH as a let-down vehicle results in more intense, brighter printed colors. The semi-opaque nature of the product allows for the reduction in the level of pigments as well as extenders.

International Listings

SPCRYL OPH is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL OPH is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests, neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL OPHF is a high hiding styrene-acrylic copolymer emulsion for use in water-based overprint varnishes and inks.

Key features & Benefits
- High color intensity
- Excellent printability
- Excellent resolubility

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Semi translucent emulsion</td>
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<tr>
<td>Non-Volatile %</td>
<td>48-50.0</td>
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<tr>
<td>pH (30°C)</td>
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<tr>
<td>Viscosity (24 30°C)</td>
<td>100-115</td>
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<td>Acid value on solid</td>
<td>31</td>
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<td>Glass transition temperature</td>
<td>100-110°C DCS</td>
</tr>
<tr>
<td>Minimum film-forming temperature(°C)</td>
<td>&gt;85</td>
</tr>
</tbody>
</table>

Storage and Stability
In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging
SPCRYL OPHF is packed in 210kgs HDPE Drums / 1000kgs IBC.

Safety
When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note
The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests, neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL 538A

Description

SPCRYL 538A is an alcohol-resistant, Rheology Controlled (RC) acrylic emulsion for use in overprint varnish and water-based inks. The product unites a good balance of alcohol resistance and resolubility.

Key features & Benefits

- Good Alcohol Resistance
- Excellent Resolubility
- Resistance to plasticizer migration
- Excellent solvent and detergent resistance

Physical Properties

- Appearance: Translucent Emulsion
- Non-Volatile %: 46.0 ± 1
- pH (30°C): 8.3
- Viscosity (cps 30°C): 200 – 300 cps
- Acid value on solid: 70
- Glass transition temperature: 60°C-70°C DCS
- Minimum film-forming temperature(°C): 65
- Freeze Thaw Stable: Yes

Application

SPCRYL 538A is a non-film forming, RC acrylic polymer that can be coalesced to form an alcohol- and chemical-resistant film for inks and coatings. In addition, the unique properties of this polymer include outstanding gloss and adhesion to flexible substrates such as vinyl and polystyrene when formulated with the proper coalescing solvents. The hardness of this polymer allows it to resist plasticizer migration on printed vinyl.

- Overprint Varnishes
- Flexo & Gravure Inks
- PVC flooring and wallpaper

International Listings

SPCRYL 538A is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

In unopened packaging Shiva Pharmachem Limited guarantee's, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL 538A is packed in 210kgs Plastic HDPE / 1000kgs IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests, neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
COLLOIDAL EMULSION

SPCRYL HMR 45
SPCRYL HMR 45H
SPCRYL HMR 45J
SPCRYL HMR 45L
SPCRYL HMR 45J
SPCRYL HMR 45T
SPCRYL HMR 45T (NV)
SPCRYL 142
SPCRYL HMR 45

Description

SPCRYL HMR 45 is an economical acrylic colloidal emulsion for use in pre-print and post-print corrugated inks and kraft paper applications.

Key features & Benefits

- Economical
- Excellent hot mar resistance
- High efficiency
- Excellent ink viscosity stability and dilution
- Excellent transfer and printability

Physical Properties

- Solids % : 44.5
- pH (30°C) : 2.1
- Viscosity cps (30°) : < 50
- Acid Number : 154
- Glass transition : 70°C
- Molecular Weight : 85,000

Neutralised letdown solution

<table>
<thead>
<tr>
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<th>Parts</th>
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</thead>
<tbody>
<tr>
<td>SPCRYL HMR45</td>
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<tr>
<td>Water</td>
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<tr>
<td>MEA</td>
<td>02.5</td>
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<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

13% solids - 800 to 1000 cps viscosity using BF Viscometer

Applications

SPCRYL HMR 45 is use in both pre-print and post – print corrugated inks and kraft paper applications to maintain ink quality compared to traditional colloidal emulsion. It is allow formulating at lower solid, leading to improve economics and efficiency.

SPCRYL HMR 45 also use to reduce the number of let-down vehicles as it can be used as a multi-purpose let-down vehicle for highly concentrated pigment dispersion systems.

International Listing

SPCRYL HMR 45 is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

in unopened packaging Shiva pharmachem limited guaranteed, life of at least 12 month if stored properly. in case of opening packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL HMR 45 is packed in 210kg HDPE Drums / 1000kg IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL HMR 45H

Description

SPCRYL HMR 45H is very cost effective acrylic colloidal emulsion for use in pre-print and post-print corrugated inks and craft paper applications.

Key features & Benefits

- Economical
- Excellent hot mar resistance
- High efficiency
- Excellent ink viscosity stability and dilution
- Excellent transfer and printability

Physical Properties

- Solids % : 44.5
- pH (30°C) : 2.1
- Viscosity cps (30°) : < 50
- Acid Number : 154
- Glass transition : 70°C
- Molecular Weight : 85,000

Neutralised letdown solution

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>SPCRYL HMR45 H</td>
<td>30.5 parts</td>
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<tr>
<td>Water</td>
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<tr>
<td>MEA</td>
<td>02.5 parts</td>
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<tr>
<td>Total</td>
<td>100.0 parts</td>
</tr>
</tbody>
</table>

13% solids - 1800 cps viscosity using BF Viscometer

Applications

SPCRYL HMR 45H is use in both pre-print and post-print corrugated inks and craft paper applications to maintain ink quality compare to traditional colloidal emulsion.

It is allow formulating at lower solid, leasing to improve economics and efficiency.

SPCRYL HMR 45H also use to reduce the number of let-down vehicles as it can be used as a multi-purpose let-down vehicle for high concentrated pigment dispersion systems.

International Listing

SPCRYL HMR 45H is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

In unopened packaging Shiva Pharmachem limited guarantee's, life of at least 12 month if stored properly.

In case of opening packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL HMR 45H is packed in 210kg HDPE Drums / 1000kg IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc., given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL HMR 45J

Description

SPCRYL HMR 45J is very cost effective acrylic colloidal emulsion for use in pre-print and post-print corrugated inks and craft paper applications.

Key features & Benefits

- Cost effective
- Good hot mar resistance
- Very high efficiency
- Excellent ink viscosity stability and dilution
- Excellent transfer and printability

Physical Properties

- Solids %: 41.0
- pH (30°C): 2.0
- Viscosity cps (30°): < 50
- Acid Number: 154
- Glass transition: 70°C
- Molecular Weight: 70,000

Neutralised letdown solution

<table>
<thead>
<tr>
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<th>Parts</th>
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<tbody>
<tr>
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<td>Water</td>
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<td>MEA</td>
<td>2.25 parts</td>
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<td>Total</td>
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</table>

Storage and Stability

in unopened packaging Shiva pharmachem limited guarantee’s, life of at least 12 month if stored properly. in case of opening packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL HMR 45J is packed in 210kg HDPE Drums / 1000kg IBC.

Applications

SPCRYL HMR 45J is use in both pre-print and post-print corrugated inks and craft paper applications to maintain ink quality compare to traditional colloidal emulsion.

It is allow formulating at lower solid, leasing to improve economics and efficiency.

SPCRYL HMR 45J also use to reduce the number of let-down vehicles as it can be used as a multi-purpose let-down vehicle for high concentrated pigment dispersion systems.

International Listing

SPCRYL HMR 45J is listed in the national inventories of all major markets. For further details, please contact the product manager.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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SPCRYL HMR 45L

Description

SPCRYL HMR 45L is very cost effective acrylic colloidal emulsion for use in pre-print and post-print corrugated inks and craft paper applications.

Key features & Benefits

- Cost effective
- Good hot mar resistance
- Very high efficiency
- Excellent ink viscosity stability and dilution
- Excellent transfer and printability

Physical Properties

- Solids % : 44.0
- pH (30°C) : 2.1
- Viscosity cps (30°) : < 50
- Acid Number : 154
- Glass transition : 70°C
- Molecular Weight : 70,000

Neutralised letdown solution

| SPCRYL HMR 45L | 30.5 parts |
| Water | 67.0 parts |
| MEA | 2.5 part |
| Total | 100.0 parts |

13% solids - 400 cps viscosity using BF Viscometer

Applications

SPCRYL HMR 45L is use in both pre-print and post-print corrugated inks and craft paper applications to maintain ink quality compare to traditional colloidal emulsion.

It is allow formulating at lower solid, leasing to improve economics and efficiency.

SPCRYL HMR 45L also use to reduce the number of let-down vehicles as it can be used as a multi-purpose let-down vehicle for high concentrated pigment dispersion systems.

International Listing

SPCRYL HMR 45L is listed in the national inventories of all major markets. For further details, please contact the product manager.

Storage and Stability

in unopened packaging Shiva pharmachem limited guarantee’s,life of at least 12 month if stored properly.
in case of opening packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL HMR 45L is packed in 210kg HDPE Drums / 1000kg IBC.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

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SPCRYL HMR 45T

Description

SPCRYL HMR 45T is a very cost effective acrylic colloidal emulsion for use in pre-print and post-print corrugated inks and kraft paper applications.

Key features & Benefits

- Cost effective
- Good hot mar resistance
- Very high efficiency
- Excellent ink viscosity stability and dilution
- Excellent transfer and printability

Physical Properties

- Solids % : 44.0
- pH (30°C) : 2.0
- Viscosity cps (30°C) : < 50
- Acid Number : 164
- Glass transition : 120°C
- Molecular Weight : 100,000

Neutralised letdown solution

<table>
<thead>
<tr>
<th>SPCRYL HMR45T</th>
<th>25.00 parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>72.75 parts</td>
</tr>
<tr>
<td>MEA</td>
<td>2.25 parts</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 parts</td>
</tr>
</tbody>
</table>

6000cps neutralized at 11% solids using BF Viscometer

Storage and Stability

In unopened packaging Shiva Pharmachem limited guarantee’s, life of at least 12 month if stored properly. In case of opening packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging

SPCRYL HMR 45T is packed in 210kg HDPE Drums / 1000kg IBC.

Applications

SPCRYL HMR 45T is use in both pre-print and post-print corrugated inks and kraft paper applications to maintain ink quality compared to traditional colloidal emulsion.

It is allow formulating at lower solid, leading to improve economics and efficiency.

SPCRYL HMR 45T also use to reduce the number of let-down vehicles as it can be used as a multi-purpose let-down vehicle for highly concentrated pigment dispersion systems.

International Listing

SPCRYL HMR 45T is listed in the national inventories of all major markets. For further details, please contact the product manager.

Safety

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.
SPCRYL HMR 45T(NV)

**Description**

SPCRYL HMR 45T(NV) is very cost effective acrylic colloidal emulsion for use in pre-print and post-print corrugated inks and craft paper applications.

**Key features & Benefits**

- Cost effective
- Good hot mar resistance
- Very high efficiency
- Excellent ink viscosity stability and dilution
- Excellent transfer and printability

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solids %</td>
<td>44.0</td>
</tr>
<tr>
<td>pH (30°C)</td>
<td>2.0</td>
</tr>
<tr>
<td>Viscosity cps (30')</td>
<td>&lt; 50</td>
</tr>
<tr>
<td>Acid Number</td>
<td>164</td>
</tr>
<tr>
<td>Glass transition</td>
<td>120°C</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>100,000</td>
</tr>
</tbody>
</table>

**Neutralised letdown solution**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCRYL HMR 45T(NV)</td>
<td>25.00</td>
</tr>
<tr>
<td>Water</td>
<td>72.75</td>
</tr>
<tr>
<td>MEA</td>
<td>2.25</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

11% solids - 2000 cps viscosity using BF Viscometer

**Applications**

SPCRYL HMR 45T(NV) is use in both pre-print and post-print corrugated inks and craft paper applications to maintain ink quality compare to traditional colloidal emulsion.

It is allow formulating at lower solid, leasing to improve economics and efficiency.

SPCRYL HMR 45T(NV) also use to reduce the number of let-down vehicles as it can be used as a multi-purpose let-down vehicle for high concentrated pigment dispersion systems.

**International Listing**

SPCRYL HMR 45T(NV) is listed in the national inventories of all major markets. For further details, please contact the product manager.

**Storage and Stability**

in unopened packaging Shiva pharmachem limited guarantee’s, life of at least 12 month if stored properly. in case of opening packaging, should be closed tightly after use and stored under cool and dry conditions.

**Standard Packaging**

SPCRYL HMR 45T(NV) is packed in 210kg HDPE Drums / 1000kg IBC.

**Safety**

When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.

**Note**

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SPCRYL 142

Description
SPCRYL 142 has been designed for use in Post-Print corrugated or kraft paper applications providing excellent transfer and printability. Alternatively it can be used as an effective thickening agent in water based flexo graphic and gravure inks.

Key features & Benefits
- Excellent transfer
- Flat dilution profile
- Good rub resistance

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Opaque emulsion</td>
</tr>
<tr>
<td>pH</td>
<td>6.1</td>
</tr>
<tr>
<td>Solids, %</td>
<td>40 ± 01</td>
</tr>
<tr>
<td>BF Viscosity, cps</td>
<td>25 cps</td>
</tr>
</tbody>
</table>

Storage and Stability
In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

Standard Packaging
SPCRYL 142 is packed in 210kgs HDPE Drums / 1000kgs IBC.

Applications
SPCRYL 142 is an acrylic colloid emulsion for use in post-print corrugated inks and kraft paper applications.

International Listings
SPCRYL 142 is listed in the national inventories of all major markets. For further details, please contact the product manager.

Safety
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Note
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OTHER PRODUCTS

SP WAX 35
SP ZINC 15
**SPWAX 35**

**Polyethylene Wax Emulsion**

**Description**

SPWAX 35 is a non-ionic emulsion of particularly fine particle size, giving much improved stability. It’s mainly used for improve RUB / SCRATCH resistance in water based OPVs and INKS.

**Key Features & Benefits**

- Ease of handling
- Aqueous based
- Enhanced rub - and scratch resistance
- Maintains gloss
- Anti blocking
- Lubricity

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Semi Translucent Emulsion</td>
</tr>
<tr>
<td>pH</td>
<td>9.5-11.5</td>
</tr>
<tr>
<td>Solids, %</td>
<td>35 ± 01</td>
</tr>
<tr>
<td>Viscosity, BF</td>
<td>Up to 100 cps</td>
</tr>
<tr>
<td>Softening Point, °C</td>
<td>130</td>
</tr>
</tbody>
</table>

**Storage and Stability**

In unopened packaging Shiva Pharmachem Limited guarantee’s, a shelf life of at least 12 months if stored properly. In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

**Applications**

The addition of SPWAX 35 will significantly improve the rub resistance and scratch resistance without affecting the gloss.

It is advisable to dilute the SPWAX 35 with water prior to its addition to inks or lacquers to avoid shock.

Suggested dosages 4 to 5%.

**International Listings**

SPWAX 35 is listed in the national inventories of all major markets. For further details, please contact the product manager.

**Standard Packaging**

SPWAX 35 is packed in 210kgs HDPE Drums / 1000kgs IBC.

**Safety**

*When handling these products, advice and information given in the safety data sheet must be complied with. Further, protective and workplace hygiene measures adequate for handling chemicals must be observed.*

**Note**

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**SP ZINC 15**

**AQUEOUS AMMONIACAL SOLUTION OF ZINC OXIDE**

**Description**
Aqueous ammoniacal solution of zinc oxide.

**Key features & Benefits**
- Cross-linking of carboxylated polymers
- Improved film hardness and heat-resistance
- Improved water resistance of label adhesives based on casein

**Applications**
Printing Inks, Overprint Varnishes & Adhesives
Additive for water-based inks & overprint varnishes
Additive for casein adhesives.

**Physical Properties**
- **Appearance**: clear colorless solution
- **pH**: 11.0 – 12.0
- **Solids, %**: 14.5 – 15.5
- **Viscosity, BF**: < 100.0 cps
- **Ionicity**: anionic

**Storage and Stability**
In unopened packaging Shiva Pharmachem Limited guarantees a shelf life of at least 12 months if stored properly.
In case of opened packaging, should be closed tightly after use and stored under cool and dry conditions.

**Standard Packaging**
SP Zinc 15 is packed in 210kgs HDPE Drums / 1000kgs IBC.

**International Listings**
SP Zinc 15 is listed in the national inventories of all major markets. For further details, please contact the product manager.

**Safety**
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**Note**
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District Vadodara, Gujarat, India.
T: +91 9574 001 950

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