

# METALWORKING, LUBRICANTS, & FUEL ADDITIVES

Dover Chemical, a leading chemical producer, offers one of the widest arrays of metalworking, lubricant & fuel additives available in the lubricants industry. Our core product line of extreme pressure (EP) additives answers the lubrication requirement needed in modern machining or driveline applications.

Dover is the sole chemical producer capable of delivering the full suite of S, Cl, P & synthetic EP additives. Our lubricant additives for MWF are both oil-soluble as well as water-soluble. Our S & P EP additives in driveline applications are important AO supplements. Dover Chemical also produces several supporting chemistries including corrosion inhibition, paraffin and asphaltene inhibition, pour point depression, dispersion, detergents, AO/AW, wetting, emulsifiers, and alkalinity sources which find use in metalworking, lubrication, fuel additives and oilfield & refinery production. Also, we have fully formulated MWF packages to allow for off the shelf solutions.

## EXTREME PRESSURE ADDITIVES SULFUR ADDITIVES

| Product  | Vis @ 100°F, SUS | Vis @ 40°C, cS | Vis @ 210°F, SUS | Vis @ 100°C, cS | % Sulfur | % Active | Neut # | Flash Point, °F | Description             |
|--|------------------|----------------|------------------|-----------------|----------|----------|--------|-----------------|-------------------------|
| <b>LARD OILS AND ESTERS – NON STAINING TO COPPER</b> |                  |                |                  |                 |          |          |        |                 |                         |
| Base 10SE  | 102              | 21             | 42.5             | 9               | 10       | 0        | 8      | 400             | Sulfurized methyl ester |
| Maysperm 2011LV                                      | 1750             | 370            | 200              | 40              | 10.5     | 0        | 9      | 400             | Sulfurized lard/ester   |
| Mayco Base 1351                                      | 1775             | 375            | 175              | 35              | 10.5     | 0        | 7      | 400             | Sulfurized lard/olefin  |
| Maysperm 2011  | 3500             | 750            | 300              | 55              | 10.5     | 0        | 11     | 425             | Sulfurized lard oil     |
| Mayco Base 1210                                      | 5500             | 1150           | 425              | 85              | 10.5     | 0        | 12     | 440             | Sulfurized lard oil     |
| Base 10L   | 6100             | 1155           | 425              | 85              | 10       | 0        | 25     | 350             | Sulfurized fatty cmpd   |
| <b>LARD OILS AND ESTERS – STAINING TO COPPER</b>     |                  |                |                  |                 |          |          |        |                 |                         |
| Base 12SE  | 110              | 20             | 40               | 5               | 13       | 3        | 4      | 350             | Sulfurized methyl ester |
| Mayco Base 4220                                      | 650              | 135            | 80               | 15              | 18       | 6        | 1      | 410             | Sulfurized esters       |
| Mayco Base 1362                                      | 2900             | 575            | 245              | 50              | 17.5     | 6        | 8      | 400             | Sulfurized lard/olefin  |
| Mayco Base 1217LV                                    | 5000             | 1050           | 335              | 75              | 17       | 6        | 10     | 400             | Sulfurized lard/ester   |
| Base 14L   | 9000             | 1700           | 525              | 120             | 13       | 3        | 26     | 350             | Sulfurized fatty cmpd   |
| Mayco Base 1214G                                     | 9500             | 2300           | 650              | 140             | 16.5     | 6        | 11     | 420             | Sulfurized lard oil     |
| <b>OLEFINS – STAINING TO COPPER</b>                  |                  |                |                  |                 |          |          |        |                 |                         |
| Mayco Base 1535                                      | 400              | 90             | 69               | 11              | 31       | 20       | 0      | 360             | Sulfurized hydrocarbon  |
| Mayco Base 1540                                      | 500              | 100            | 70               | 15              | 38.5     | 27       | 0      | 360             | Sulfurized hydrocarbon  |

## EXTREME PRESSURE ADDITIVES (CONT.)

### CHLORINE ADDITIVES

| Product  | Color Gardner | Chlorine Content, % by Wt. | Specific Gravity @ 25°C | Viscosity Poise @ 77°F | Viscosity SUS @ 210°F | Density Pounds per Gallon | Volatility % Loss, 24hrs @ 100°C | Stability JQD %HCL, 4hrs @175°C | Flash Point F (Cleveland Open Cup) |                                 |
|--|---------------|----------------------------|-------------------------|------------------------|-----------------------|---------------------------|----------------------------------|---------------------------------|------------------------------------|---------------------------------|
| <b>VERY LONG-CHAIN CHLORINATED ALKANES, C21+</b>     |               |                            |                         |                        |                       |                           |                                  |                                 |                                    |                                 |
| Chloroflo X-42                                       | 0.5           | 40.0                       | 1.120                   |                        | 90                    | 9.3                       |                                  |                                 |                                    |                                 |
| Paroil X-140LV                                       | 0.5           | 42.0                       | 1.170                   | 26.0                   | 142                   | 9.5                       |                                  |                                 | >450                               |                                 |
| Paroil X-140   | 1             | 41.0                       | 1.150                   | 29.0                   | 140                   | 9.9                       |                                  | 0.8                             |                                    |                                 |
| Paroil CW-50AO                                       | 1             | 46.6                       | 1.220                   | 110.0                  | 282                   | 10.2                      | 0.03                             | 0.25                            | 392                                |                                 |
| <b>MEDIUM-CHAIN CHLORINATED ALKANES, C14; C14-16</b> |               |                            |                         |                        |                       |                           |                                  |                                 |                                    |                                 |
| Paroil 10-NR   | <1            | 40.1                       | 1.102                   | 0.4                    | 37                    | 9.2                       | 0.8                              | 0.2                             | >350                               |                                 |
| Paroil 152   | 1             | 51.9                       | 1.270                   | 15.0                   | 69                    | 10.6                      | 0.9                              | 0.3                             | >450                               |                                 |
| Paroil 54-NR   | 1             | 55.3                       | 1.294                   | 17.8                   | 75                    | 10.8                      | N/A                              | 0.2                             | >450                               |                                 |
| Paroil 58-NR   | 2             | 59.0                       | 1.380                   | 300.0                  | 176                   | 11.5                      | 0.5                              | 0.3                             | >450                               |                                 |
| Paroil 63-NR   | 1             | 63.6                       | 1.439                   | 450.0                  | 314                   | 12.0                      | 0.5                              | 0.2                             | >450                               |                                 |
| <b>CHLORINATED LUBRICANTS</b>                        |               |                            |                         |                        |                       |                           |                                  |                                 |                                    |                                 |
| DA-8527  | 3             | 29                         |                         |                        | 110                   |                           |                                  | 4                               |                                    |                                 |
| Doverguard E-35                                      | <2            | 35                         | 1.16                    |                        |                       | 9.6                       |                                  |                                 |                                    |                                 |
| <b>ACID SCAVENGERS</b>                               |               |                            |                         |                        |                       |                           |                                  |                                 |                                    |                                 |
| Doverflex 100  |               | N/A                        | 0.99 (60°F)             |                        |                       | 8.25                      | N/A                              | N/A                             | 590                                | ESO Chlorinated Stain Inhibitor |

### PHOSPHORUS ADDITIVES - EXTREME PRESSURE, ANTI-WEAR, ANTI-OXIDANT

| Product          | Vis @ 100°F, SUS | Vis @ 210°F, SUS | % Phos | Acid # | EP | AO | AW | Comments                              |
|------------------|------------------|------------------|--------|--------|----|----|----|---------------------------------------|
| Mayfree 2033     | 3,500            | 215              | 4      | 110    | x  |    | x  | Phosamide                             |
| Mayfree 133      | 44,000           | 750              | 4      | 155    | x  |    | x  | Phosamide                             |
| Doverphos EP-425 | 1,260            | 91               | 4.3    | < 1    | x  | x  | x  | Polymeric Phosphite Ester             |
| Doverphos 253    | 148              | -                | 5.3    | 10     | x  | x  | x  | Di-Oleoyl Hydrogen Phosphite Ester    |
| Doverphos 54     | 140              | -                | 5.3    | < 1    |    | x  | x  | Tri-Alkyl Phosphite Ester             |
| Mayphos 45       | 90,000           | 1,750            | 5.4    | 200    | x  |    |    | Ethoxylated Phosphate Ester           |
| EM 706           | 1,550            | 155              | 5.5    | 157    | x  |    |    | Alkyl Phosphate Ester                 |
| Maylube S-830    | 1,500            | -                | 1.2    | 72     | x  |    |    | Water Soluble Phosphate Ester Booster |
| Doverlube NCL-2  | 9300             | 470              | 3      | 150    | x  |    | x  | Phosphorus Package                    |

### SYNTHETIC LUBRICANTS

| Product         | Vis @ 100°F, SUS | Vis @ 210°F, SUS | Acid # | Color (ASTM) | Comments  |
|-----------------|------------------|------------------|--------|--------------|---|
| Doverlube NCEP  | 300              | -                | 10     | > 5          | S&P free Vegetable oil based EP (1.5% N by wt.)                     |
| Doverlube 31700 | 17,000           | 1150             | 5      | 3.5          | Polymeric Ester   |
| Maylube S-003   | 300              | -                | 20     | 5            | Water Soluble Ester pkg. that brightens surface finish              |
| Lube Booster II | 2300             | -                | 65     | 4            | Water Soluble Polymer   |
| Inversol 140    | 7600             | 600              | 15     | 3.5          | Complexed Ester; cloud point at 140F                                |
| Inversol 170    | 7500             | 600              | 14     | 3.5          | Complexed Ester; cloud point at 170F                                |
| Maylube E-112   | 105              | 32               | 9      | 2.0          | NPG Ester, Suitable HP Aluminum cutting                             |
| Maylube E-101   | 95               | 35               | 2      | 0.5          | Tridecyl Stearate Ester, Suitable Aluminum Machining                |
| Maylube E-190   | 43               | 32               | 1.5    | 0.5          | Synthetic Ester, Excellent Wetting, light duty stamping and finning |

### PACKAGES & / OR DUAL EP

| Product          | Vis @ 100°F, SUS | Vis @ 210°F, SUS | Acid # | % Phos | % Chlorine | % Sulfur | % Active | Comments  |
|------------------|------------------|------------------|--------|--------|------------|----------|----------|---|
| Maychlor 1010    | 900              | 170              | 1      | -      | 10         | 10       | 3.5      | Sulfur-chlorinated fatty additive               |
| Maychlor HV-Lite | 18,000           | 1,200            | 5      | -      | 6          | 6        | 0        | Light colored sulfur-chlorinated fatty additive |
| Mayco Base 930   | 3,800            | 150              | -      | -      | 31         | 9        | 3.2      | Stainless steel cold heading additive           |
| Mayco Base CF-95 | 350              | 65               | 4      | -      | -          | 4.5      | 1.5      | Sulfurized sulphonate                           |
| Mayco Base CF-74 | 550              | 95               | 2      | -      | -          | 2.5      | 0        | Sulfurized sulphonate                           |

## CORROSION INHIBITORS & PH BUFFERS

### AMINE BORATE CORROSION INHIBITORS

| Product    | Vis @ 100°F, SUS | Boron % | Acid # | TBN | Comments                  |
|------------|------------------|---------|--------|-----|---------------------------|
| Synkad 204 | 4400             | 4.1     | NR     | 370 | High performance Boramide |
| Synkad 202 | 6300             | 4.4     | NR     | 420 | Cost effective Boramide   |

### FATTY ACID BASED CORROSION INHIBITORS

| Product            | Vis @ 100°F, SUS | Alkalinity | Acid # | TBN | Comments   |
|--------------------|------------------|------------|--------|-----|--|
| Mayco Base RP 8708 | 90               | 22         | 16     | 240 | Excellent rust protection and hard water stability |
| Mayco Base RP 8765 | 176              | 20         | 185    | 236 | Provides excellent rust protection plus lubricity  |
| Synkad 828         | 215              | 22         | 155    | 250 | DEA-free Carboxylic acid condensate                |

### FATTY ACID BASED CORROSION INHIBITOR

| Product           | Appearance        | SG @ 25°C | Imidazoline % | TBN | Comments                             |
|-------------------|-------------------|-----------|---------------|-----|--------------------------------------|
| Doverhib CI 181TO | Dark amber liquid | 0.985     | 65            | 230 | TOFA Imidazoline Corrosion Inhibitor |

## EMULSIFIERS, DISPERSANTS & DETERGENTS

### ALKANOLAMIDES

| Product        | Vis @ 100°F, SUS | pH @ 1% | Acid # | TBN | Mol Ratio | Comments            |
|----------------|------------------|---------|--------|-----|-----------|---------------------|
| Emulamid FO5DF | 2,000            | 9.2     | 4      | 140 | 2:1       | Fatty DIPA Amide    |
| EM 996         | 1,060            | 9.5     | 28     | 144 | 2:1       | Tall Oil DIPA Amide |
| EM 980         | 2,800            | 9.7     | 50     | 180 | 2:1       | Fatty Amide         |
| Emulamid 2C22  | 1,100            | 9.8     | 30     | 165 | 2:1       | Coco Amide          |
| Emulamid 1023  | 950              | 9.5     | 5      | 50  | 1:1       | Fatty DIPA Amide    |

### PIBSA & PIBSI

| Product            | Physical Form                   | Acid Value, mgKOH/g | Free Maleic Acid, % | Viscosity, cSt @ 100°C | Hydrolysis, % |
|--------------------|---------------------------------|---------------------|---------------------|------------------------|---------------|
| Dovermulse H-1000  | Viscous dark amber/brown liquid | 54                  | <0.5                | 470                    | ≤5.0          |
| Dovermulse H-1013P | Viscous amber liquid            | 50                  | 0.25                | 290                    | ≤5.0          |
| Dovermulse H-1020P | Viscous amber liquid            | 46                  | 0.25                | 220                    | ≤5.0          |
| Dovermulse H-1035N | Viscous amber liquid            | 34                  | 0.25                | 74                     | ≤5.0          |
| Dovermulse H-1335P | Viscous amber liquid            | 29                  | 0.25                | 140                    | ≤5.0          |
| Dovermulse H-2300  | Viscous amber liquid            | 24                  | <0.5                | 2,300                  | ≤5.0          |

| Product             | Physical Form                   | TBN | % N | Viscosity, cSt @ 100°C | Specific Gravity |
|---------------------|---------------------------------|-----|-----|------------------------|------------------|
| Doversperse H-1015P | Viscous dark amber/brown liquid | 77  | 3.2 | 450                    | 0.92             |
| Doversperse H-1035P | Viscous dark amber/brown liquid | 62  | 2.2 | 160                    | 0.91             |
| Doversperse H-1335P | Viscous amber liquid            | 26  | 1.2 | 252                    | 0.908            |

### EMULSIFIER BASES AND COUPLERS

| Product     | Vis @ 100°F, SUS | Acid Value | Appearance         | Comments  |
|-------------|------------------|------------|--------------------|---|
| Base 7800   | 8,000            | 23         | Amber-brown liquid | Emulsifier base for naphthenic and paraffinic basestocks  |
| Base 8000P  | 7,700            | 24         | Amber-brown liquid | Emulsifier base for paraffinic basestocks                 |
| Base 1142PB | 6,500            | 50         | Amber-brown liquid | PIBSA based emulsifier base for Group II & III basestocks |
| EM 40       | 530              | 5          | Yellow liquid      | Modified glycerol monotallate                             |
| EM 600      | 310              | 7          | Yellow liquid      | Co-emulsifier for semi-synthetics and soluble oils        |

## POUR POINT DEPRESSANTS

### HYDROCARBON

| Product      | Vis @ 100°C, cSt | Pour Point °C | Flash Point (COC) | Chlorine % | Color (G) | Comments                         |
|--------------|------------------|---------------|-------------------|------------|-----------|----------------------------------|
| Keil-Flo 150 | 70               | -35           | 182°C (360°F)     | 0          | 14        | 50% active pour point depressant |
| Keil-Flo 195 | 890              | -40           | 204°C (400°F)     | 0          | 14        | 95% active pour point depressant |

## MWF PACKAGES

### SEMI-SYNTHETIC CONCENTRATES

| Product       | Vis @ 100°F, SUS | Vis @ 40°C, cS | pH @ 5% | Acid # | Alkalinity | Comments  |
|---------------|------------------|----------------|---------|--------|------------|---|
| Maysol SSD-50 | 800              | 170            | 9.5     | 25     | 10         | 50/50 (product/water); Boron-free; General Purpose    |
| Maysol HOSS   | 1500             | 325            | 9.4     | 60     | 12         | 50/50 (product/water); High Oil Content; EP-fortified |

### SYNTHETIC COOLANTS

| Product      | PH (neat) | pH @ 5% | Acid # | Alkalinity | Comments  |
|--------------|-----------|---------|--------|------------|---|
| Maysyn S-168 | 8.7       | 8.3     | 50     | 8          | Ready-to-Relabel HD Machining & Grinding on Ferrous and Nonferrous    |
| Maysyn S-122 | 9.7       | 9.3     | 73     | 17         | Cut 60/40 (water/product) for medium duty machining of Ferrous alloys |

# SERVICE | Focusing Extraordinary Resources on Customer Needs

**Dover Chemical Corporation** is uniquely equipped to provide timely solutions to your needs for chlorinated alkanes, organophosphites, flame retardants, antioxidants, metalworking, lubricants, fuel additives and drilling-fluid additives.

Total Quality is assured from product development through actual production. Our research center, with state-of-the-art equipment, is able to develop new products to perform to your specifications. This modern facility, complimented by our ISO 9001 certification, means consistent, continuing conformance to your ever-changing needs.

Demanding “just-in-time” delivery schedules are not a problem with Dover Chemical. We are dedicated to anytime delivery – nights, days, weekends, whenever you need our products—allowing you to eliminate costly inventory warehousing while still meeting your own production requirements.

**The bottom line of our customer service advantage is our people. People with the knowledge and flexibility to make sure you obtain the timely chemical solutions you need.**



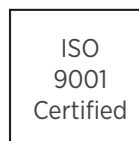
Customer Service: 800-753-6837

330-343-7711 • 800-321-8805

Fax: 330-364-9626

[www.DoverChem.com](http://www.DoverChem.com)

[customerservice@doverchem.com](mailto:customerservice@doverchem.com)



Certification No.  
QSR-130