

# Emkarate® POE Oil

Refrigerating systems and motor vehicle air conditioning use the following oils:

- » Polyol Ester Oils - POE, used with HFC gases;
- » Alkylbenzene Oils - ALK, used with mixtures for retrofitting;
- » Polyalkyl Glycol Oils - PAG, used with R134a in motor vehicle air conditioning;
- » Mineral Oils - MIN, used with HCFC.

Below are the main characteristics of these products: a good lubrication in the presence of refrigerating gases; a good solubility in cold gas sucked from the compressor; a low vapor pressure and a low propensity to dragging in hot gas.

The wide range of General Gas products includes all Poe Emkarate® Oils. RL "H" Polyol Ester based-lubricants have been designed to be used in a range of low temperatures, whereas other lubricants fail. The new H-series provides superior performances in low temperature applications - 0°C -90°C.

| Oli Poe Emkarate®     | Viscosity @ 40 °C | Viscosity @ 100 °C | Viscosity Index | Pour Point  | Density @ 20 °C  | Flash Point COC | Acid Value         | Miscibility 10% Oil in R-134a |
|-----------------------|-------------------|--------------------|-----------------|-------------|------------------|-----------------|--------------------|-------------------------------|
| Method UM             | ASTM D445 cSt     | ASTM D445 cSt      | ASTM D2270 -    | ASTM D97 °C | ASTM D1298 Kg/m³ | ASTM D92 °C     | ASTM D974 mg KOH/g | Test Produttore °C            |
| Emkarate® RL 22H      | 18.9              | 4.2                | 120             | -52         | 995              | 240             | < 0.05             | -45                           |
| Emkarate® RL 32H      | 32.5              | 5.8                | 121             | -46         | 977              | 258             | < 0.05             | -42                           |
| Emkarate® RL 32 3 MAF | 31.2              | 5.6                | 125             | -40         | 981              | 240             | < 0.05             | -30                           |
| Emkarate® RL 46H      | 45.3              | 7.1                | 116             | -46         | 977              | 260             | < 0.05             | -37                           |
| Emkarate® RL 68H      | 66.6              | 9.4                | 120             | -39         | 977              | 270             | < 0.05             | -26                           |
| Emkarate® RL 68HB     | 66.6              | 9.4                | 120             | -39         | 980              | 270             | < 0.05             | -26                           |
| Emkarate® RL 100H     | 96.5              | 11.3               | 103             | -28         | 969              | 260             | < 0.05             | -28                           |
| Emkarate® RL 170H     | 170.0             | 17.0               | 107             | -25         | 968              | 290             | < 0.05             | immiscible                    |
| Emkarate® RL 220H     | 215.0             | 18.8               | 98              | -25         | 975              | 280             | < 0.05             | -18                           |



## Performance

- ✓ Characteristics of purity of the Poe base and high performance of additives developed by Emkarate make these oils one of the best product of lubrication for the use with HFC refrigerants.
- ✓ Emkarate Poe Oils are approved by the major compressor manufacturers such as Bitzer, Copeland, Frascold, Dorin and Gea Bock.

| Lubricant         | Residential<br>Air Conditioning                                                                  |          | Industrial<br>Refrigeration                                                                      |             | Commercial<br>Refrigeration                                                               |                                                                                             | Item Code          | Container<br>Capacity<br>Lt. | Pcs. per<br>Pack | Sales<br>Unit |
|-------------------|--------------------------------------------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------|------------------------------|------------------|---------------|
|                   | Alternativi<br> | Rotativi | Centrifughi<br> | Alternativi | Vite<br> | Scroll<br> |                    |                              |                  |               |
| Emkarate® RL 22H  | ✓                                                                                                | ✓        | ✓                                                                                                | ✓           |                                                                                           | ✓                                                                                           | F-OL-EM-22H-1LT    | 1                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-22H-5LT    | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-22H-20LT   | 20                           | 1                | Lt.           |
| Emkarate® RL 32H  | ✓                                                                                                | ✓        | ✓                                                                                                | ✓           |                                                                                           | ✓                                                                                           | F-OL-EM-32H-1LT    | 1                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-32H-5LT    | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-32H-20LT   | 20                           | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-32H-200LT  | 200                          | 1                | Lt.           |
| Emkarate® RL 46H  | ✓                                                                                                | ✓        | ✓                                                                                                | ✓           | ✓                                                                                         | ✓                                                                                           | F-OL-EM-46H-1LT    | 1                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-46H-5LT    | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-46H-20LT   | 20                           | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-46H-200LT  | 200                          | 1                | Lt.           |
| Emkarate® RL 68H  | ✓                                                                                                | ✓        | ✓                                                                                                | ✓           | ✓                                                                                         | ✓                                                                                           | F-OL-EM-68H-1LT    | 1                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-68H-5LT    | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-68H-20LT   | 20                           | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-68H-200LT  | 200                          | 1                | Lt.           |
| Emkarate® RL 68HB | ✓                                                                                                | ✓        | ✓                                                                                                | ✓           | ✓                                                                                         | ✓                                                                                           | F-OL-EM-68HB-20LT  | 20                           | 1                | Lt.           |
| Emkarate® RL 100H |                                                                                                  |          | ✓                                                                                                | ✓           | ✓                                                                                         | ✓                                                                                           | F-OL-EM-100H-1LT   | 1                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-100H-5LT   | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-100H-20LT  | 20                           | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-100H-200LT | 200                          | 1                | Lt.           |
| Emkarate® RL 170H |                                                                                                  |          | ✓                                                                                                | ✓           | ✓                                                                                         | ✓                                                                                           | F-OL-EM-170H-1LT   | 1                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-170H-5LT   | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-170H-20LT  | 20                           | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-170H-200LT | 200                          | 1                | Lt.           |
| Emkarate® RL 220H |                                                                                                  |          | ✓                                                                                                | ✓           | ✓                                                                                         |                                                                                             | F-OL-EM-220H-5LT   | 5                            | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-220H-20LT  | 20                           | 1                | Lt.           |
|                   |                                                                                                  |          |                                                                                                  |             |                                                                                           |                                                                                             | F-OL-EM-220H-200LT | 200                          | 1                | Lt.           |