



# 10 Marine Lubricants Information Bulletin



## Cetus<sup>®</sup> DE 100 Application Guidelines

Cetus DE 100 is a synthetic lubricant used to lubricate piston air compressors. It is formulated with diester-based fluid and exhibits a high degree of inherent detergency that keeps compressor parts clean and in service. The lubricant is miscible with nondetergent mineral or PAO-based compressor oils, such as Chevron's Compressor Oil EP VDL or Cetus PAO synthetic compressor oil.

### Application guidelines

Cetus DE 100's good solvency keeps components clean; however, its use requires these precautions:

- Make sure that all compressor components in contact with the lubricant are as clean as possible before changing lubricant products. Carbonaceous deposits from petroleum oils previously used may be loosened and dislodged by the detergent-cleaning action of Cetus DE 100.
- Change filter elements as required.
- Monitor oil pressure drop across the filters after changing to Cetus DE 100. It is important to follow the compressor manufacturer's recommended procedure when changing oils.

### Changing oils

#### Reciprocating compressors (cylinder and crankcase lubrication change over)

1. Drain mineral oil from the compressor and inspect its internal condition.
2. Remove the cylinder heads and side covers from the compressor, and inspect the pistons, intake and discharge valves. If they are covered by carbon and/or heavy deposits, remove and clean them.
3. Remove deposits from the crankcase housing and/or any accessible air passageways when inspecting or cleaning the valves.

4. Blow out all accessible oil pipes. If possible, run Cetus DE 100 lubricant through the lube lines into a suitable container. Five to ten minutes of flow should flush old mineral oil deposits. The flushing oil can be used for further cleaning purposes if it is not too heavily contaminated.
5. Drain and clean the downstream filters and separators.
6. Start the compressor, using the same lubrication rate as used with the previous lubricant, after completing the inspection and cleanup. Because of the extremely low volatility of Cetus DE 100 synthetic lubricant and its good metal-wetting properties, the volume of oil required to maintain good lubrication is often less than that of other oils. To determine the optimum rate for these ester-based oils, inspect a cylinder wall after operation and adjust the rate so that the walls are wet.
7. Periodically inspect the downstream filters, separators, and air flow passages for sludge from portions of the compressor which were not cleaned. Cetus DE 100 synthetic lubricant removes deposits from inaccessible oil lines and passages, which may reduce filter efficiency.

#### Rotary compressors

1. Drain all mineral oil from the unit. For best results, drain the unit when it is warm.
2. Open the manual condensate drain valve and drain all liquid.

3. Remove the pipe plug from the bottom of the separator/receiver tank and drain all liquid.
4. Remove the pipe plug from the bottom of the oil cooler and drain completely.
5. Clean the oil filter completely or replace it.
6. Disconnect all oil piping that could trap oil and drain the pipes. If possible, run Cetus DE 100 lubricant through lube lines into a suitable container. Five to ten minutes of flow should flush old mineral oil deposits. The flushing oil can be used for further cleaning purposes if it is not too heavily contaminated.
7. Start the compressor after completing the inspection and cleanup.
8. Periodically inspect the downstream filters, separators, and air flow passages for sludge from portions of the compressor which were not cleaned. Cetus DE 100 synthetic lubricant removes deposits from inaccessible oil lines and passages, which may reduce filter efficiency and require an earlier change.

To minimize the requirement for periodic inspections, follow the compressor manufacturer's recommended procedures for the thorough cleaning of all valves, air passages, intercoolers, and separators. Some compressor manufacturers recommend using mineral solvents to clean compressors. Only use this type of solvent on severely lacquered or varnished machines where the deposits cannot be wiped or scraped off.

If using a mineral solvent, make sure that all loosened deposits and solvents are removed before filling the compressor with Cetus DE 100 lubricant. Any residual solvent can decrease the life of the synthetic lubricant.

Another, less preferred method for removing resistant deposits is to run the unit on the selected Cetus DE 100 lubricant for approximately 100 hours, drain the unit while it is hot, clean or replace the filter, and re-fill it with fresh Cetus DE 100 lubricant.

### Materials compatibility

The guide below lists the types of materials generally acceptable for use with Cetus DE 100. This list is for guidance only. Before using the lubricant, consider any specific formulations, methods of manufacture and/or application, and the conditions and degree of exposure for all seals, paints, and plastics.

### Polycarbonate bowls

A number of air line filters and separator manufacturers use polycarbonate plastic bowls in their units. Numerous tests demonstrated that compatibility problems can occur when using polycarbonate bowls with Cetus DE 100 lubricant. To avoid compatibility problems, we recommend either covering polycarbonate bowls with metal bowl guards or replacing them with metal bowls. ■

#### PLASTIC COMPATIBILITY

Acceptable	Marginal	Not Acceptable
✓ Nylon	– Polyurethane	✗ Polyethylene
✓ Fluorocarbon (PTFE)	– Polypropylene	✗ Lexan
✓ Polyacetal (Delrin)	– Polysulfone	✗ PVC
		✗ Acrylic

#### PAINTS AND COATINGS COMPATIBILITY

Acceptable	Marginal	Not Acceptable
✓ Epoxy	– Phenolic	✗ Acrylic
✓ Baked Phenolic	– Industrial Latex	✗ Household Latex
✓ 2-Comp. Urethane	– Single-Comp. Urethane	✗ Vinyl (PVC)
✓ Moisture-Cured Urethane	– Alkyls (Baked-Finished preferred)	✗ Varnish and Lacquer

#### SEAL MATERIAL COMPATIBILITY

Acceptable	Not Acceptable
✓ Fluorocarbon (Viton, PTFE, Fluorel)	✗ Ethylene-Propylene Terpolymer (EPDM)
✓ Fluorosilicone Rubber	✗ Polychloroprene (Neoprene)
✓ Silicone Rubber	✗ Butyl Rubber
✓ Epichlorohydrin	✗ Natural Rubber
✓ Medium Nitrile Rubber (Buna N, NBR 30-36% acrylonitrile)	✗ Low Nitrile Rubber (Buna N, NBR < 30% acrylonitrile)
✓ High Nitrile Rubber (Buna N, NBR 36% acrylonitrile)	✗ Styrene-Butadiene Rubber (Buna S, SBR)
✓ Polyacrylate Rubber	✗ Ethylene/Acrylic Rubber
✓ Chlorosulfonated Polyethylene (Hypalon)	✗ Ethylene-Propylene Copolymer Rubber (EPR)
✓ Polyurethane	✗ Polysulfide (Thiokol)