



# INUGEL OPTIMAL

**Ready to use cooling liquid**

**Anti-corrosion and anti-freeze,  
Protection -37°C / -35°F  
AOT Technology**

**Nitrite free / Amine free / Phosphate free / Borate free / Silicate free**

## **TYPE OF USE**

MOTUL INUGEL OPTIMAL is a ready to use cooling liquid, based on monoethyleneglycol, using organic additives (AOT).

Strongly recommended for all cooling systems : passenger cars, heavy duty, construction and agriculture vehicles, gardening, ships, stationary engines, ...

## **PERFORMANCES**

STANDARDS AND MANUFACTURER SPECIFICATIONS : Refer to chart.

**Contains a bitterness agent to prevent from drinking : coolants and antifreezes have a sweet taste but are harmful.**

Cooling system optimal protection from freezing and metallic parts from corrosion.

AOT technology provides an excellent thermal exchange and therefore improves engine cooling efficiency and prevents from boiling.

This organic technology provides anti-corrosion properties that remain while high temperature and aging. Low corrosion inhibitors consumption allows extended drain intervals. Water pumps protection, avoid cavitation.

Seals, durits, pipes and plastic parts friendly.

## **RECOMMENDATIONS**

Ready to use, do not add any water.

Drain intervals : Refer to the manufacturers' recommendation.

Do not mix with non organic products.

This product should not be used to protect drinking water systems against freezing.

## **PROPERTIES**

Nitrite free, amine free, phosphate free, borate free, silicate free.

|                         |            |                 |
|-------------------------|------------|-----------------|
| Color                   | Visual     | Orange fluo     |
| Density at 20°C / 68°F  | ASTM D4052 | 1.068           |
| pH                      | ASTM D1287 | 8.4             |
| Initial crystallization | ASTM D1177 | -38°C / -36.4°F |
| Freezing protection     |            | -37°C / -34.6°F |
| Boiling Point           | ASTM D1120 | 108°C           |
| Alkalinity reserve      | ASTM D1121 | 2.8 mg KOH/g    |

# MOTUL INUGEL OPTIMAL

| OEM Group          | OEM            | Specification              |
|--------------------|----------------|----------------------------|
| ADE                | ADE            |                            |
| Aston Martin       | Aston Martin   |                            |
| Berh               | Berh           |                            |
| Cummins            | Cummins        | IS series & N14            |
| Cummins            | Wärtsilä       | 32-9011                    |
| Daimler            | Mercedes-Benz  | MB 325.3                   |
| Detroit Diesel     | Detroit Diesel | Power Cool Plus            |
| Deutz              | Deutz          | 0199-99-1115 (2)           |
| Deutz / MWM        | Deutz / MWM    | 0199-99-2091 (4)           |
| Ford               | Ford           | WSS-M97B44-D               |
| General Motors     | Chevrolet      |                            |
| General Motors     | Opel - GM      | GM 6277M (+B040 1065)      |
| General Motors     | Saab           | GM 6277M (+B040 1065)      |
| General Motors     | Vauxhall       | QL 130100                  |
| General Motors     | Vauxhall       | GM 6277M (+B040 1065)      |
| Isuzu              | Isuzu          |                            |
| Jenbacher          | Jenbacher      |                            |
| John Deere         | John Deere     | JDMH5                      |
| Karosa             | Karosa         |                            |
| Kobelco            | Kobelco        |                            |
| Komatsu            | Komatsu        | 07.892 (2001)              |
| Liebherr           | Liebherr       | MD1-36-130                 |
| MAK                | MAK            | A4.05.09.01                |
| MAN                | MAN            | 324 typ SNF                |
| MAN                | MAN Steyr      | MAN 324                    |
| MAN                | MAN B&W AG     | D36 5600                   |
| MAN                | MAN B&W A/S    |                            |
| MAN                | Semt Pielstick |                            |
| Mazda              | Mazda          | MEZ MN 121 D               |
| MG-Rover           | Rover          |                            |
| Mitsubishi         | Mitsubishi     |                            |
| MTU                | MTU            | MTL 5048                   |
| Paccar             | DAF            | 74002                      |
| Paccar             | Leyland Trucks | DW03245403                 |
| Renault            | Renault        | 41-01-001/-S Type D        |
| Saturn             | Saturn         |                            |
| Suzuki             | Santana Motors |                            |
| Tata Motors        | Jaguar         | CMR 8229                   |
| Tata Motors        | Jaguar         | WSS-M97B44-D               |
| Tata Motors        | Land-Rover     |                            |
| Tata Motors        | Thermo King    |                            |
| Ulstein Bergen     | Ulstein Bergen | 2.13.01                    |
| Volvo Construction |                |                            |
| Volvo AB           | Mack           | 014 GS 17009               |
| Volvo AB           | Renault Trucks | 41-01-001/-S Type D        |
| Volvo AB           | Volvo Trucks   | 128 6083 / 002             |
| VW (VAG)           | Audi           | TL-774 D = G 12            |
| VW (VAG)           | Audi           | TL-774 F = G 12+           |
| VW (VAG)           | Seat           | TL-774 C = G 11            |
| VW (VAG)           | Seat           | TL-774 F = G 12+           |
| VW (VAG)           | Skoda          | TL-774 C = G 11            |
| VW (VAG)           | Skoda          | TL-774 F = G 12+           |
| VW (VAG)           | Skoda          | 61-0-0257                  |
| VW (VAG)           | Volkswagen     | TL-774 C = G 11            |
| VW (VAG)           | Volkswagen     | TL-774 F = G 12+           |
| VW (VAG)           | Volkswagen     | TL-774 G = G 12++          |
| VW (VAG)           | Volkswagen     | TL-774 J = G 13            |
| Wärtsilä           | SACM Diesel    | DLP799861                  |
| Wärtsilä           | Wärtsilä       | 32-9011                    |
| Wärtsilä           | Waukesha       |                            |
| Yanmar             | Yanmar         |                            |
| BRB                |                | BR 637                     |
| ASTM Standards     |                | ASTM D3306 / D4656 / D4985 |
| British Standards  |                | BS 6580                    |
| French Standards   |                | NFR 15-601                 |
| FVV Standards      | Germany        | FVV Heft R443              |
| Japanese Standards |                | JASO M325                  |
| Japanese Standards |                | JIS K2234                  |
| Korean Standards   |                | KSM 2142                   |
| MIL Standards      | MIL-Belgium    | BT-PS-606 A                |
| MIL Standards      | MIL-France     | DCSEA 615/C                |
| MIL Standards      | MIL-Italy      | E/L-1415b                  |
| MIL Standards      | MIL-Sweden     | FSD 8704                   |
| NATO Standards     |                | NATO S-759                 |
| Önorm              |                | Önorm V5123                |
| SAE Standards      |                | SAE J1034                  |
| UNE Standards      |                | UNE 26-361-88/1            |

We retain the right to modify the general characteristics of our products in order to offer to our customers the latest technical development

Product specifications are definitive from the order which is subject to our general conditions of sale and warranty. Made in FRANCE

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