



TECHNICAL DATA SHEET

DESCRIPTION
This is a technical data sheet for a Yanmar marine engine. It provides detailed information about the engine's specifications, performance, and maintenance requirements. The document is intended for use by marine professionals and owners of Yanmar engines.

APPLICATIONS
This engine is designed for use in a variety of marine applications, including powerboats, yachts, and commercial fishing vessels. It is known for its reliability, fuel efficiency, and low maintenance requirements.

FEATURES
Key features of this engine include its compact design, which allows for easy installation in tight quarters. It also features a dry sump lubrication system, which helps to reduce oil consumption and maintain optimal engine performance. Additionally, the engine is equipped with a range of optional accessories, such as alternators and water pumps, to meet the needs of different applications.

OPERATING CONDITIONS
This engine is designed to operate in a wide range of conditions, from cold climates to hot, humid environments. It is built to withstand the rigors of marine use and is capable of operating at high altitudes. The engine's operating conditions are detailed in the technical specifications section of this data sheet.

**For Technical Data Sheet (TDS) e-mail us
info@yanmaroil.com**

ITEM	UNIT	VALUE	ITEM	UNIT	VALUE
Displacement	liters	1000	Stroke	mm	100
Power (max)	HP	100	Speed (max)	rpm	3000
Weight (dry)	kg	100	Oil capacity	liters	10
Length	mm	1000	Width	mm	500
Height	mm	1000	Weight (wet)	kg	150
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MATERIAL SAFETY DATA SHEET

ROTA 100 ISO VG 100

SECTION 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

1.1. Identification of substance / preparation

PRODUCT : ROTA 100 (ISO VG 100)
CHEM NAME : PETROLEUM DISTILLATE (MIXTURE)
CHEM FAMILY : PETROLEUM HYDROCARBON
HEALTH HAZARD : NON-HAZARDOUS SUBSTANCE, NON-DANGEROUS GOODS.

1.2. Application

For used in Engines Oils.

For specific application advice see appropriate Technical Data Sheet.

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. Chemical Composition

Highly purified base oil

COMPOSITION	CAS NO.	PERCENT
Distillates (petroleum), solvent- dewaxed heavy paraffinic	64742-65-0	10-25
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	50-75

SECTION 3. HAZARDS IDENTIFICATION

This material is not considered to be hazardous under the OSHA Hazard Communication Standard, but should be handled in accordance with good industrial hygiene and safety practices.

SECTION 4. FIRST-AID MEASURES

4.1. Eyes

- Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.

4.2. Skin

- Wash skin thoroughly with soap and water as soon as reasonably practicable. Remove heavily contaminated clothing and wash underlying skin.

4.3. Ingestion

- If contamination of the mouth occurs, wash out thoroughly with water.
- Except as a deliberate act, the ingestion of large amounts of product is unlikely. If it should occur, do not induce vomiting; obtain medical advice.

4.4. Inhalation

- If inhalation of mists, fumes or vapor causes irritation to the nose or throat, or coughing, remove to fresh air. If symptoms persist obtain medical advice.

4.5. Medical Advice

- Treatment should in general be symptomatic and directed to relieving any effects.

SECTION 5. FIRE-FIGHTING MEASURES

- Use foam, dry powder or water fog. DO NOT USE water jets.
- Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus.
- Water may be used to cool nearby heat exposed areas/objects/packages. Avoid spraying directly into storage containers because of the danger of boil-over.

5.1. Combustion Products

- Toxic fumes may be evolved on burning or exposure to heat.
- See Stability and Reactivity, Section 10 of this Safety Data Sheet.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Contain and recover spilled material using sand or other suitable inert absorbent material.
- It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated.
- Spilled material may make surfaces slippery.
- Protect drains from potential spills to minimize contamination. Do not wash product into drainage system.
- In the case of large spills contact the appropriate authorities.
- In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment. Recover product from the surface. Protect environmentally sensitive areas and water supplies.

SECTION 7. HANDLING AND STORAGE

7.1. Handling Precautions

- Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate.
- Avoid frequent or prolonged skin contact with fresh or used product.
- Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times.
- Wash hands thoroughly after contact.
- Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets.

7.2. Fire Prevention

- Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

7.3. Storage Conditions

- Store under cover away from heat and sources of ignition.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Exposure Limits

- There is no appropriate occupational exposure limit for this material.
- Ensure good ventilation.
- Avoid, as far as reasonably practicable, inhalation of vapor, mists or fumes generated during use.
- If vapor, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

8.2. Protective Clothing

- Wear face visor or goggles in circumstances where eye contact can accidentally occur.
- If skin contact is likely, wear impervious protective clothing and/or gloves.
- Protective clothing should be regularly dry cleaned. Change heavily contaminated clothing as soon as reasonably practicable; dry clean, launder and preferably starch before re-use. Wash any contaminated underlying skin with soap and water.

8.3. Respiratory Protection

- Respiratory protection is unnecessary, provided the concentration of vapor, mists or fumes is adequately controlled.
- The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	LIQUID
COLOR	YELLOW TO AMBER
ODOR	PETROLEUM
pH	NOT AVAILABLE
SPECIFIC GRAVITY@15°C	<1
FLASH POINT (COC)	>200°C
SOLUBLITY	INSOLUBLE IN WATER, SOLUBLE IN MANY SOLVENTS
FREEZING POINT	NOT APPLICABLE
MELTING POINT	NOT APPLICABLE
AUTO-IGNITION TEMPERATURE	>300 °C

SECTION 10. STABILITY AND REACTIVITY

- Products of this type are stable and unlikely to react in a hazardous manner under normal conditions of use.
- Hazardous polymerization reactions will not occur.
- This material is combustible.

10.1. Materials to Avoid

- Avoid contact with strong oxidizing agents.

10.2. Hazardous Decomposition Products

Thermal decomposition products will vary with conditions.

Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, including carbon monoxide, hydrogen sulphide and oxides of sulphur and phosphorus.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Eyes

- Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.

11.2. Skin

- Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis.

11.3. Ingestion

- Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhea.

11.4. Inhalation

- At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility.
- May cause irritation to eyes, nose and throat due to exposure to vapor, mists or fumes.
- May be harmful by inhalation if exposure to vapor, mists or fumes resulting from thermal decomposition products occurs.

SECTION 12. ECOLOGICAL INFORMATION

12.1. Mobility

- Spillages may penetrate the soil causing ground water contamination.

12.2. Persistence and degradability

- This product is inherently biodegradable.

12.3. Bioaccumulative potential

- There is no evidence to suggest bioaccumulation will occur.

12.4. Aquatic toxicity

- Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

SECTION 13. DISPOSAL CONSIDERATIONS

- Where possible, arrange for product to be recycled.
- Dispose of via an authorized person/ licensed waste disposal contractor in accordance with local regulations.
- Incineration may be carried out under controlled conditions provided that local regulations for emissions are met.

SECTION 14. TRANSPORT INFORMATION

- Not classified as hazardous for transport (ADR, RID, UN , IMO, IATA/ICAO).

SECTION 15. REGULATORY INFORMATION

- Not classified as hazardous for supply.
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- This data sheet and the health, safety and environmental information it contains is considered to be accurate. We have reviewed any information contained herein which we received from sources outside of Company. However, no warranty or representation, express or implied is made as to the accuracy or completeness of the data and information contained in this data sheet.
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