Technical Data Sheet

- Reliable Performance
- Ammonia applications

Shell **Turbo** *Oil N 46*

Ammonia Compressor Lubricant

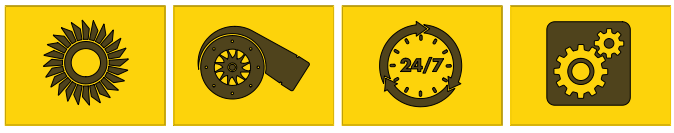
Shell Turbo N was developed specifically for the lubrication of turbo-compressors and associated steam turbines in demanding ammonia and synthesis gas applications, with a common lubricant oil system. Shell Turbo N has been developed to offer oxidative performance whilst maintaining inertness to the aggressive process gas.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Resistant to reaction with ammonia**
  The use of highly refined base oils and specific additives, resistant to attack by ammonia, minimizes the possibility of damaging oil soluble/insoluble ammonia compounds being formed in the lubricant. These could impair the reliable operation of bearings and seal oil systems.
- **Excellent Rust & Corrosion Protection**
  Prevents the formation of rust and guards against onset of corrosion, ensuring protection for equipment during operation and during shut-downs.
- **Strong Control of Oxidation**
  The use of inherently oxidatively stable base oils together with an effective inhibitor package provides high resistance to oxidative degradation. The result is extended oil life, minimising the formation of corrosive species, deposits and sludge, even when the oil is exposed to an aggressive process gas such as ammonia.
- **High Resistance to Foaming and Rapid Air Release**
  The oils are formulated with an anti-foam additive, which generally controls foam formation. This feature coupled with fast air-release from the lubricant reduces the possibility of problems such as pump cavitation, excessive wear and premature oil oxidation.
- **Good Water-shedding properties**
  Robust demulsibility control such that excess water, commonplace in steam turbines, can be drained easily from the lubrication system, minimizing corrosion and premature wear.

Main Applications



Specifications, Approvals & Recommendations

- ISO 8086 L-TGB
- ISO 8086 L-TGSB
- DIN 51515 Part 1 L-TD
- DIN 51515 Part 1 L-TG
- DIN 51524 Part 1 HL
- GB 11120 L-TGA
- GB 11120 L-TSA
- GB 11120 L-TGSB
- MAN D&T SE TED 10000494596, Rev. 3

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

Compatibility & Miscibility

- **Seal Compatibility**

  Shell Turbo N is compatible with all commonly used sealing materials designed for use with mineral oils.
- **Lubricant Compatibility**

  Shell Turbo N is completely miscible with Shell Turbo T and Shell Turbo S4 products.

Typical Physical Characteristics

Properties			Method	Shell Turbo Oil N 46
ISO Viscosity Grade			ISO 3448	46
Colour		maximum	ASTM D1500	0.5
Kinematic Viscosity	@40°C	mm^2/s	ASTM D445	46
Kinematic Viscosity	@100°C	mm^2/s	ASTM D445	6.90
Viscosity Index			ASTM D2270	105
Density	@15°C	kg/m^3	ASTM D4052	866
Flash Point		°C minimum	ASTM D92	200
Total Acid Number		mg KOH/g maximum	ASTM D974	0.05
Pour Point		°C maximum	ASTM D5950	-27
Foaming Characteristics - Seq II Tendency Stability		ml/ml	ASTM D892	20/0
Air Release		minutes	ASTM D3427	4
Water Separability		minutes	ASTM D1401	15
Rust Test, Synthetic Sea Water			ASTM D665B	Pass
Copper Corrosion (3 hrs, 100°C rating)			ASTM D130	1b
RPVOT, minutes		minutes minimum	ASTM D2272	750

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

Health, Safety & Environment

- **Health and Safety**

  Shell Turbo N is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

  Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

  Guidance on Health and Safety is available on the appropriate Safety Data Sheet, which can be obtained from https://www.epc.shell.com

- **Protect the Environment**

  Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

Additional Information

- **Advice**

  Advice on applications not covered here may be obtained from your Shell representative.