



Product & Technical Data

Castrol Brayco Micronic SV/A

Synthetic subsea production control fluid

Description

Castrol Brayco Micronic SV/A is an environmentally enhanced fourth generation synthetic hydrocarbon control fluid specifically formulated for use as the control medium in subsea and surface production control systems. The product meets the environmental requirements for use in closed loop subsea production control systems.

Castrol Brayco Micronic SV/A has been developed and qualified under a system with ISO 9001 accreditation for Research and Development.

Application

The fluid incorporates all the features that are required for operation in a wide range of equipment and are stable for operation at the high temperatures found in the well bore. Castrol Brayco Micronic SV/A has been developed specifically for Norsk Hydro and is suitable for use in all the existing and currently planned projects. Castrol Brayco Micronic SV/A is currently rated for use at 120°C, making it suitable for use in all Norsk Hydro subsea applications.

Castrol Brayco Micronic SV/A has similar physical characteristics to the Castrol Brayco Micronic SV/200, 864HT/200 and 865 grades.

Compatibility with Castrol Brayco Micronic SV/200

Extensive physical, chemical and performance testing has demonstrated that Castrol Brayco Micronic SV/A is fully compatible and miscible in all proportions with the Castrol Brayco Micronic SV/200.

Warning: As Castrol Brayco Micronic SV/200 is a high temperature grade contamination with Castrol Brayco Micronic SV/A will adversely affect the thermal stability. Equipment that is filled with Castrol Brayco Micronic SV/A should not be used with Castrol Brayco Micronic SV/200.

Castrol Brayco Micronic SV/A is recommended for use in:

- Norsk Hydro subsea and surface production control systems
- Down hole choke control
- Existing Norsk Hydro production control systems using Castrol Brayco Micronic SV/200



Castrol Brayco Micronic SV/A must never be mixed with control fluids of different base types such as water glycol based fluids (e.g. Castrol Transaqua HT) or mineral oils (such as the Castrol Hyspin range). Contamination of Castrol Brayco Micronic SV/A by either of these types of products will seriously affect the product performance.

Features

- Operating capability of 120°C
- Corrosion protection with sea water contamination
- Anti-wear properties
- Exceeds cleanliness standard of NAS 1638 Class 6
- It is compatible with all metals used in subsea control systems, and with elastomers and plastics including Nitrile, Viton and PTFE.

Benefits

- Allows reliable operation of subsea or surface production control equipment.

Castrol Brayco Micronic SV/A – Typical Physical Characteristics

Density 20°C	0.8166 g/ml
Density 50°C	0.7966 g/ml
Pour Point, °C	< -50
Flash Point, °C	147 typical
Kinematic Viscosity, cSt	
@ -20°C	108.4
@ 0°C	38.2
@ 40°C	10.3
@ 100°C	3.5
Viscosity Index	266
Bulk Modulus, N/m ²	1.05 x 10 ⁹
Coefficient of Thermal Expansion, /°C	0.82 x 10 ⁻³ / °C
Foam Test Sequence, ml	
Sequence I	100/0
Particulate Cleanliness	
SAE AS4059D	Class 6 B to F or better
ISO 4406	Code 14/11 or better
Moisture content	
Volumetric – Karl Fischer	< 500 ppm
Relative Humidity – CWS01	< 30 %



Castrol Brayco Micronic SV/A – Typical Performance Characteristics

Property	Performance
Rusting Characteristics with sea water ASTM 10% seawater	Provides anti corrosion performance on carbon steel with 10% sea water Pass (24, 48 hours)
Lubrication Shell 4 Ball Mean Wear Scar Diameter (1hr, 30 kg, 1460 rpm)	0.47 mm
Marine Environmental performance	All toxicity, biodegradation and bioaccumulation testing completed according to OSPAR guidelines.

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Castrol Brayco Micronic SV/A – Metal compatibility

Material	Compatibility	Comments
Plain Carbon Steel	Compatible	Unprotected carbon steel above the fluid surface may be subject to corrosion from condensed moisture if fluid contains excessive water.
Stainless Steel (316L)	Compatible	
Steel 1020	Compatible	
Super Duplex Steel (2507)	Compatible	
Inconel (Incoloy 825)	Compatible	Excellent for high temperature applications
Hastelloy	Compatible	
Titanium	Compatible	
Aluminium Bronze	Compatible	
Yellow metals	Not all compatible	Please consult with Castrol direct

Castrol Brayco Micronic SV/A is compatible with many materials commonly used in the construction of modern production subsea control systems. A complete materials review should always be carried out before using Castrol Brayco Micronic SV/A. Being a non-aqueous medium, galvanic corrosion is minimized and hence Castrol Brayco Micronic SV/A is suitable for use where a wide variety of metals are used within the control system.

NB: Castrol Brayco Micronic SV/A is not compatible with all yellow metals. If you use yellow metals in your system please consult with Castrol technical team prior to use.



Castrol Brayco Micronic SV/A- Elastomer & Plastic compatibility

Material	Compatibility	Comments
Medium Nitrile	Compatible	Widely used as standard seal material. Performance can vary according to grade
High Nitrile	Compatible	
Carboxylated Nitrile	Compatible	Excellent abrasion resistance
Fluorocarbon (Viton)	Compatible	Performance can vary according to grade. Superior to nitrile if higher temperatures involved (90°C or above)
Chemraz	Compatible	Excellent for high temperature applications
Rubber Impregnated Fabric Composites	Not Compatible (unless Specifically developed for water service)	Wear exposes fabric, allowing moisture ingress and swell/delamination. Replace with polymeric seal compound
PEEK	Compatible	
PTFE	Compatible	
Silicone	Not Compatible	
Ethylene Propylene	Not Compatible	Important EPR is not suitable for use with any hydrocarbon based fluids
Acetal	Limited compatibility	Do not use above 50°C

As with all elastomer compatibility testing, performance of materials can vary between manufacturers. The data reported above refer to “standard” compounds recognised by industry. In critical applications it is advisable to carry out additional testing on specific materials obtained from the component manufacturer.

Seal Materials to be avoided

Ethylene Propylene rubbers (EPR, EPDM) are not compatible with Castrol Brayco Micronic SV/A. These materials must be changed out from equipment that is to be used with Castrol Brayco Micronic SV/A.



Health and Safety

The wearing of impervious PVC (or other suitable material) apron and gloves, together with eye protection is recommended. Contaminated clothing should be changed immediately and thoroughly cleansed before re-use. This applies especially to under garments.

Material safety data sheets are available for all Castrol subsea products from www.castroloffshore.com

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