Technical Information
Fuel & Lubricant Solutions

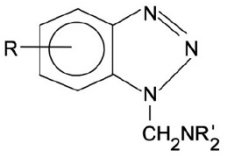
BASF
We create chemistry

IRGAMET® 39

Oil soluble metal deactivator

Typical chemical and physical properties

IRGAMET 39, a tolutriazole derivative, is a liquid oil soluble metal deactivator.



Appearance	Clear, yellow to brown liquid
Viscosity at 40 °C	80 mm^2/s
Density at 20 °C	0.95 g/cm^3
Flash point	> 150 °, COC
Solubility	
Water	< 0.01 %
Mineral oil	> 5 %
Nitrogen content	14.6 %

Applications and typical treat levels recommended

Industrial lubricants, especially gas turbine and R & O oils	200 – 500 ppm

Benefits

– Provides high activity at low concentrations
– Approved by FDA/USA for use in blending lubricants with incidental food contact
– High performance in hydrotreated base stocks
– Exhibits high synergism with Irganox L antioxidants, resulting in superior oxidation stability
– Offers low volatility
– Contains no diluents
– Easy to handle liquid with excellent solubility in mineral oil

Restrictions

May interact with metal containing additives

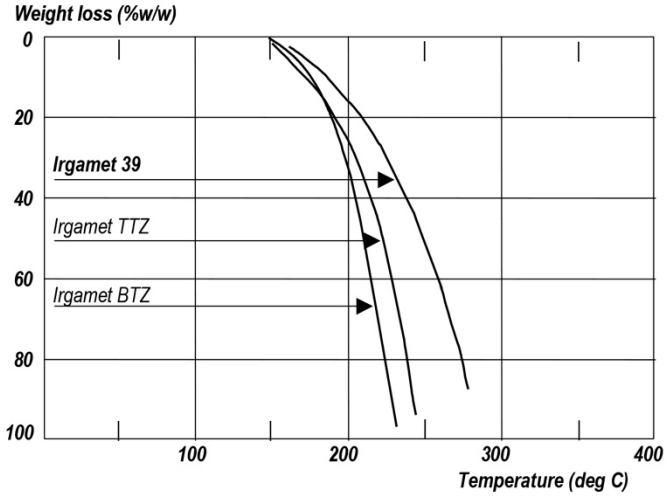
Additive volatility

The volatility of additives can have a major impact on lubricant performance characteristics.

Thermogravimetric analysis (TGA) provides information about the volatility of an additive, as well as its thermal and oxidative stability.

Test procedure

Additive < 50 mg , is heated in a controlled atmosphere (air) at a rate of 10 °C per minute from 25 °C up to as high as 400 C. The weight loss (in %) of the sample as a function of temperature is represented graphically.



Additive volatility

BASF can offer a full range of additives cleared by FDA/USA for formulating lubricants incidental food contact which may come into contact with food. Please see Product Selection Guide for complete list.
Cleared by the FDA under 21 CFR 178.3570, for use in USDA H-1 lubricants with incidental food contact.

	maximum treat level (1)
IRGAMET 39	**0.1 % wt/wt**

(1) The maximum allowed concentration may exceed the solubility limit of this additive in some base stocks.

Performance benefits: Metal surface protection

Copper protection

The liquid IRGAMET 39 provides comparable copper surface protection as the solid benzotriazole e.g Irgamet BTA M, under ASTM D 130 test conditions.

Test fluids

IRGAMET 39	(%)	0.05	–	–
Irgamet BTZ	(%)	–	0.05	–
Base fluid (1)		balance	balance	neat
Addition of elemental sulphur	(ppm)	50	50	50

Copper corrosion prevention (ASTM D 130), 3 hrs, 100 °C

Copper strip	(rating)	1a	1b	4a

(1) Base fluid characteristics Solvent refined HVI ISO VG	 32

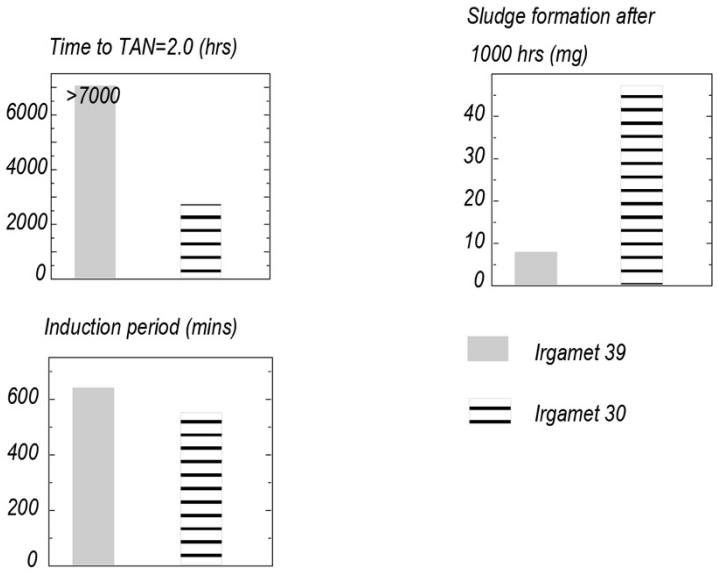
Oxidation inhibition

IRGAMET 39 provides optimised oxidati bility in hydrotreated base stocks compared with Irgamet 30.

Test oils

Metal deactivator	0.05 %
Antioxidant blend	0.20 %
Irgacor L 12 (corrosion inhibitor)	0.05 %
Hydrotreated base stock	balance

TOST (ASTM D943)



Surface properties

Air release and demulsibility are not influenced by IRGAMET 39.

Test oils

IRGAMET 39	**(%)**	0.1	–
Base stock [1]	(%)	balance	neat

Air release (DIN 51381/IP 313)
at 50°C

Separation time	(%)	2	82

Demulsibility (ASTM D 1401)
54 °C, 40ml oil, 40ml dist. water

Separation time	(%)	4	8

[1] Base stock characteristics		
ISO VG		32
VI		102
C (aromatic)	(%)	6.5
C (paraffinic)	(%)	72.0
Sulphur	(%)	0.54

Safety and Handling	Please read Material Safety Data Sheet (MSDS) before handling.
Product Specifications	This information is available on request through our local representative.
Packaging	This information is available on request through our local representative.
Safety	When using this product, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the **precautions** necessary for handling chemicals.
Note	The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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BASF SE
Fuel and Lubricant Solutions
67056 Ludwigshafen, Germany
www.basf.com/automotive-oil