

Determination of sulfur in oil and oil products according to GOST ISO 8754-2013

This standard is an identical translation of the European standard ISO 8754: 2003 Petroleum products - Determination of sulfur content - Energy-dispersive X-ray fluorescence spectrometry .

The standard specifies a method for the determination of the sulfur content in petroleum products such as kerosene, unleaded motor gasoline, middle distillates, heating oil, lubricating base oils and their components.

DESCRIPTION OF THE METHOD:

The analysis does not require preliminary sample preparation. The sample is placed in the cuvette as it is and covered with foil.

The test sample, placed in a cuvette, is irradiated with the primary radiation of an X-ray tube. The pulse counting rate from the S-K α X-ray fluorescence is measured. The sulfur content is determined from a calibration curve plotted for the measured sulfur range.

MEASURING RANGE:

The method is applicable for products with a sulfur content in the range of 0.03% to 5.00%, with the following precision parameters:

Convergence r

Discrepancy between the results of successive tests obtained by the same operator on the same apparatus under constant operating conditions under identical tested materials in a long-term operation, if the test method is performed correctly, may exceed the following values only in one case out of twenty:

$r = 0.0454 (X + 0.05)$, for values $\geq 0.03\%$ and $\leq 0.05\%$
 $r = 0.0215 (X + 0.15)$, for values $> 0.05\%$ and $\leq 5.00\%$
where X is the average value of the compared results, %.

Reproducibility R The

discrepancy between two separate and independent test results obtained by different operators working in different laboratories on an identical test material over a long period of time can exceed the following values only in one case in twenty:

$R = 0.1781 (X + 0.05)$, for values $\geq 0.03\%$ and $\leq 0.05\%$
 $R = 0.0812 (X + 0.15)$, for values $> 0.05\%$ and $\leq 5.00\%$
where X is the average value of the compared results, %.