Determination of sulfur in motor fuel according to GOST R 52660-2006 and GOST ISO 20884-16

These standards are a translation of the European standard ISO 20884: 2011 "Petroleum products - Determination of sulfur content of automotive fuels - Wavelength-dispersive X-ray fluorescence spectrometry" (Petroleum products. Determination of sulfur content in automotive fuels. X-ray fluorescence spectrometry with wavelength dispersion).
The standard applies to liquid homogeneous motor gasolines, the mass concentration of oxygen in which is not more than 2.7%, and diesel fuels, containing not more than 5% (vol.) Fatty acid methyl ester (FAME), and establishes a method for determining the sulfur content in the range from 5 to 500 mg / kg by wavelength dispersive X-ray fluorescence spectrometry.

DESCRIPTION OF THE METHOD:

The analysis does not require preliminary preparation of samples for analysis. The sample is poured into a cuvette and covered with foil.
The test sample, placed in a cuvette, is irradiated with the primary radiation of an X-ray tube. The pulse count rate from the S-Ka X-ray fluorescence radiation and the background radiation pulse count rate are measured. The sulfur content is determined from a calibration curve plotted for the measured sulfur range.

MEASURING RANGE:

The method establishes the determination of the sulfur content in the range from 5 to 500 mg / kg, with the following precision parameters:

Repeatability r
Discrepancy between two test results obtained by the same operator on the same apparatus in continuous operation on an identical test material for a period long time, with the normal and correct performance of the test method, can exceed the values given in the table only in one case out of twenty.

Mass concentration of sulfur, mg / kg	Repeatability r, mg / kg	Reproducibility R, mg / kg
5 to 60	1.7 + 0.0248X *	1.9 + 0.1201X
St. 60 "500	4.0	4.6 + 0.075X

* X is the mean value of the results, mg / kg

Reproducibility R The
discrepancy between two single and independent test results obtained by different operators working in different laboratories on an identical test material for a long time with normal and correct performance of the test method may exceed the values given in the table, only in one case out of twenty.