

THE AUTOMATIC GAS CHROMATOGRAPHIC SYSTEM FOR DETERMINATION OF PETROL COMPONENTS AND THE BASIC PETROL PARAMETERS

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The automatic gas chromatographic system UNICHROM for the detailed hydrocarbon analysis (DHA) of various petroleum fractions and products has been developed. Samples of gasoline are analyzed by temperature programmed gas chromatograph on a high-resolution capillary column which separates hydrocarbons in order of their boiling points. Individual components are identified comparing their Kovats or linear retention indices with a library of 330 components. Then all the major gasoline standardized specifications are calculated from the obtained DHA data. As the result of single chromatographic petrol sample analysis (about 70 min) it is possible to determine such characteristics:

- Detailed hydrocarbon and fractions contents (conforms ASTM D5134, GOST 6994 and ASTM D5580, GOST 8997 and GOST 2070),
- Contents of aromatic components (conforms GOST 6994 and ASTM 5580),
- Contents of olefin components (conforms GOST 8997 and 2070),
- Fractional content (conforms GOST 2177 and ASTM D86),
- Detonation stability expressed in terms of research octane number RON (conforms GOST 8226 and ASTM 2699),
- Detonation stability expressed in terms of motor octane number MON (conforms GOST 511 and ASTM 2700),
- Saturated vapor pressure (conforms GOST 1756-52 and ASTM 2889),
- Density (conforms GOST 3900 and ASTM 4052).

The high reproducibility and the reliability of developed system UNICHROM in the Central Laboratory of the Mozyr Oil Refinery (Belarus) and in The State Criminal Center of the Home Office of Belarus has been achieved. The method is certified at The State Metrology Committee of Belarus (No. MVI.MN 998-99).

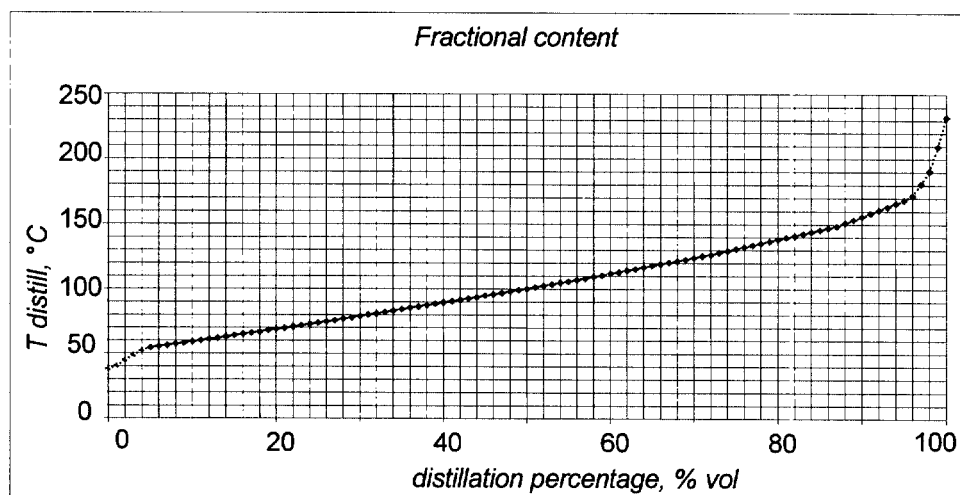


Figure 1. Fractional content of gasoline calculated from DHA data.