



EESTI AKREDITEERIMISKESKUS

LISA OÜ Analiit-AA laboratooriumi
akrediteerimistunnistusele nr. L039
ANNEX to accreditation certificate
No L039 of the Laboratory Analiit-AA Ltd

1. Akrediteerimisulatus on:

Accreditation scope is:

A. Kauba koguse mõõtmine *Product quantity measurement*

Nr No	Objekt Object	Metoodika Procedure	Mõõtevõime* Measurement capability*
A.1	Koguste määramine/arvutamine <i>Quantity measurement</i> Naftasaadused <i>Petroleum products</i> Põlevkiviõli <i>Shale oil</i> Rasvhapete metüülestrid(FAME) <i>Fatty acid methyl esters (FAME)</i> Loomsed ja taimsed rasvad ja õlid <i>Animal and vegetable fats and oils</i> Vedelad tööstuslikud kemikaalid <i>Liquid hydrocarbons</i>	API MPMS Ch.12.1.1. Calculation of Petroleum Quantities - Calculation of Static Petroleum Quantities - Upright Cylindrical Tanks and Marine Vessels. API MPMS Ch.12.1.2. Calculation of Petroleum Quantities - Calculation of Static Petroleum Quantities -Calculation Procedures for Tank Cars. API MPMS Chapter 11.1 – 2004 ASTM D 1250-08; IP 200/08 Standard Guide for Use of the Petroleum Measurement Tables ASTM D 1555M-08e1 Standard Test Method for Calculation of Volume and Weight of Industrial Aromatic Hydrocarbons and Cyclohexane [Metric] TJ-PP-AN-A.1 Calculation of Volume and Weight (Petroleum products) TJ-ShO-AN-A.1 Calculation of Volume and Weight (Shale oil) TJ-BD-AN-A.1 Calculation of Volume and Weight (FAME) TJ-PAO-AN-A.1 Calculation of Volume and Weight (Animal and vegetable fats and oils) TJ-LH-AN-A.1 Determination of volume and weight of chemical products	$U = 0,5 \% (k=2)$ mõõtetulemusest/ <i>from measurement result</i>

Nr No	Objekt Object	Metoodika Procedure	Mõõtevõime* Measurement capability*
A.2	<p>Sügavuste mõõtmine mahutites <i>Gauging</i> Naftasaadused <i>Petroleum Product</i></p> <p>Põlevkiviõli <i>Shale oil</i> Rasvhapete metüülestrid (FAME) <i>Fatty acid methyl esters (FAME)</i> Loomsed ja taimsed rasvad ja õlid <i>Animal and vegetable fats and oils</i> Vedelad tööstuskemikaalid <i>Liquid hydrocarbons</i></p>	<p>API MPMS Ch.3.1A - Tank Gauging. Standard Practice for the Manual Gauging of Petroleum and Petroleum Product.</p> <p>TJ-PP-AN-A.2 Manual Gauging(Petroleum products)</p> <p>TJ-ShO-AN-A.2 Manual Gauging (Shale oil)</p> <p>TJ-BD-AN-A.2 Manual Gauging (FAME)</p> <p>TJ-PAO-AN-A.2 Manual Gauging (Animal and vegetable fats and oils)</p> <p>TJ-LH-AN-A.2 Manual Gauging (Liquid hydrocarbons)</p>	<p>$U = (0,2 \times L + 0,7) \text{ mm } (k=2)$, L – sügavusmõõde, m L – gauging result, m</p>
A.3	<p>Temperatuuri mõõtmine elektroonilise termomeetriga <i>Static temperature determination using portable electronic thermometers</i> Naftasaadused <i>Petroleum products</i></p> <p>Põlevkiviõli <i>Shale oil</i> Rasvhapete metüülestrid (FAME) <i>Fatty acid methyl esters (FAME)</i> Loomsed ja taimsed rasvad ja õlid <i>Animal and vegetable fats and oils</i> Vedelad tööstuskemikaalid <i>Liquid hydrocarbons</i></p>	<p>API MPMS Ch.7. Temperature Determination. ISO 4268 Petroleum and liquid petroleum products - Temperature measurements – Manual method</p> <p>TJ-PP-AN-A.3 Temperature Determination (Petroleum products)</p> <p>TJ-ShO-AN-A.3 Temperature Determination (Shale oil)</p> <p>TJ-BD-AN-A.3 Temperature Determination (FAME)</p> <p>TJ-PAO-AN-A.3 Temperature Determination (Animal and vegetable fats and oils)</p> <p>TJ-LG-AN-A.3 Temperature Determination (Liquid hydrocarbons)</p>	<p>(-10) ... (35) °C, $U = 0,2 \text{ °C } (k=2)$ (-25) ... (-10) °C, $U = 0,3 \text{ °C } (k=2)$ (35) ... (100) °C, $U = 0,3 \text{ °C } (k=2)$</p>

Nr No	Objekt Object	Metoodika Procedure	Mõõtevõime* Measurement capability*
A.4	<p>Koguste mõõtmine raudtee mahutites: <i>Gauging in tank cars.</i> Naftasaadused <i>Petroleum products</i></p> <p>Põlevkiviõli / <i>Shale oil</i></p> <p>Rasvhapete metüülestrid (FAME) <i>Fatty acid methyl esters (FAME)</i> Loomsed ja taimsed rasvad ja õlid <i>Animal and vegetable fats and oils</i> Vedelad tööstuskemikaalid <i>Liquid hydrocarbons</i></p>	<p>API MPMS Ch.3.2. Tank gauging . Standard Practice for Gauging Petroleum and Petroleum Products in Tank Cars. Инструктивные указания по определению веса наливных грузов в цистернах. Табл.калибровки ж.д.цистерн / <i>Guidance on determining the weight of liquid cargo in tanks.</i> Утв.Департ.Вагон.Хозяйства. МПС России 1997; Таблицы калибровки железнодорожных цистерн / <i>Tables of calibration tank wagons</i> Утв. Департ. Вагон. Хозяйства. МПС России 2003. TJ-PP-AN-A.4 Manual Gauging in tank cars (petroleum products)</p> <p>TJ-ShO-AN-A.4 Manual Gauging in tank cars (Shale oil)</p> <p>TJ-BD-AN-A.4 Manual Gauging in tank cars (FAME)</p> <p>TJ-PAO-AN-A.4 Manual Gauging in tank cars (Animal and vegetable fats and oils) TJ-LG-AN-A.4 Manual Gauging in tank cars (Liquid hydrocarbons)</p>	<p>$U = 0,7 \% (k=2)$ mõõtetulemusest/ <i>from measurement result</i></p>
A.5	<p>Vedelike mahu ja massi mõõtmine autotsisternis <i>Measurement of liquid mass and volume in road tanks</i></p>	<p>OIML R80 Edition 1989 (E) Road and rail tankers. Annex 1; Measurement of liquid mass and volume in road tanks.</p> <p>TJ-RT-AN-A.5 Measurement of Liquid Mass and Volume in Road Tanks</p>	<p>$U = 0,5 \% (k=2)$ mõõtetulemusest/ <i>from measurement result</i></p>

nr. No	Objekt Object	Metoodika Procedure	Mõõtevõime* Measurement capability *
A.6	<p>Koguste määramine laevamahutites <i>Quantity measurement on Board Tank Vessels</i></p> <p>Naftasaadused <i>Petroleum products</i></p> <p>Põlevkiviõli / <i>Shale oil</i></p> <p>Rasvhapete metüülestrid (FAME) <i>Fatty acid methyl esters (FAME)</i></p> <p>Loomsed ja taimsed rasvad ja õlid <i>Animal and vegetable fats and oils</i></p> <p>Vedelad tööstuskemikaalid <i>Liquid hydrocarbons</i></p>	<p>API MPMS. Ch.17.2. Manual of Petroleum Measurement Standards. Marine Measurement. Measurement of Cargoes On Board Tank Vessels.</p> <p>API MPMS Ch.17.4. Manual of Petroleum Measurement Standards. Marine Measurement. Method for Quantification of Small Volumes on Marine Vessels (OBQ/ROB).</p> <p>TJ-PP-AN-A.6 Quantity Measurement on board tank vessels (Petroleum products)</p> <p>TJ-ShO-AN-A.6 Quantity Measurement on board tank vessels (Shale oil)</p> <p>TJ-BD-AN-A.6 Quantity Measurement on board tank vessels (FAME)</p> <p>TJ-PAO-AN-A.6 Quantity Measurement on board tank vessels (Animal and vegetable fats and oils)</p> <p>TJ-LH-AN-A.6 Quantity Measurement on board tank vessels (Liquid hydrocarbons)</p>	<p>$U = 0,5 \%$ ($k=2$)</p> <p>mõõtetulemusest/ <i>from measurement result</i></p>
A.7	<p>Nafta ja naftasaaduste mõõtmine arvestiga ja arvutus mahule 15°C juures <i>Calculation of Petroleum Quantities Using Dynamic Measurement Methods</i></p>	<p>API MPMS : Ch. 5, Ch.12.2.1 , Ch.12.2.2 , Ch.13.2; EVS-EN ISO 4267-2</p> <p>TJ-DM-AN-A.7 Calculation of Liquid Quantities Using Dynamic Measurement Methods</p>	<p>Alates/ <i>from</i> 10 l</p> <p>$U = 0,7 \%$</p> <p>mõõtetulemusest/ <i>from measurement result</i></p>

Kauba koguse määramine *Quantity measurement of goods*

nr. No	Objekt Object	Metoodika Procedure	Mõõtevõime* Measurement capability*
A.8	Kauba massi mõõtmine kaalumisega <i>Mass measurement by weighing</i>	EVS 745 Kauba ja materjali massi mõõtmine kaalumisega. Mõõtemetoodika / <i>Goods and materials mass measurement by weighing. Measurement method</i> TJ-MMV-AN-A.8 Goods and materials mass measurement by weighing.	$U = 0,5\%$ ($k=2$) mõõtetulemusest/ <i>measurement result</i>

Proovivõtmine *Sampling*

nr. No	Objekt Object	Metoodika Procedure
A.9	Naftasaadused <i>Petroleum products</i> Vedelad tööstuskemikaalid <i>Liquid hydrocarbons</i> Rasvhepete metüülestrid (FAME) <i>Fatty acid methyl esters (FAME)</i> Põlevkiviõli <i>Shale oil</i> Loomsed ja taimsed rasvad ja õlid <i>Animal and vegetable fats and oils</i> Aviation Kerosines, AVGAS	API MPMS Ch.8.1. Standard Practice for Manual Sampling of Petroleum and Petroleum Products. EN ISO 3170 Petroleum liquids - Manual sampling. ASTM D 4057 Petroleum and petroleum products. Manual sampling. EN 14275 Automotive fuels – Assessment of petrol and diesel fuel quality – Sampling from retail site pumps and commercial site fuel dispensers. EN ISO 5555 Animal and vegetable fats and oils – Sampling. TJ-PP-AN-A.9 Manual sampling (Petroleum products) TJ-SP-AN- A.9 Sampling from retail site pumps and commercial site fuel dispensers. TJ-ShO-AN- A.9 Manual sampling(Shale oil) TJ-PAO-AN- A.9 Animal and vegetable fats and oils – Sampling. TJ-JIG-AN- A.9 Manual sampling (Aviation Kerosines, AVGAS)

*Mõõtevõime on väljendatud laiendmääramatusena U tõenäosustasemel 95 % normaaljaotuse järgi ning väljendab labori mõõtevõimet, mida ta võib mõõtmisel normaalingimustel saavutada, kusjuures mõõteobjekti mõju on minimaalsel tasemel ning järgitud on mõõtemetoodikat ja mõõteriista kasutusjuhendit/
Measurement capability is expressed as the extended uncertainty U on the probability level 95 % and represents laboratory's measurement capability which can be achieved on normal conditions if measurement object's influence is minimal.

B. Analüüside nimekiri*List of analysis*

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.1	Tiheduse mõõtmine laboratselt areomeetrilise meetodiga. <i>Crude petroleum and liquid petroleum products – Laboratory determination of density – Hydrometer method</i>	EN ISO 3675			1,2,3,4,5, 6,7,8,9,10, 11,12,16, 17	kg/m ³ (g/ml)	600...1100 (0,6...1,1) Transparent low-viscosity (-2 to 24,5 °C) Opaque (-2 to 24,5 °C)	1,2 (0,0012) 1,5 (0,0015)
	Tiheduse määramine hüdroomeetrilisel meetodil. <i>Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method</i>		D1298	API MPMS Ch 9.1* IP 160	1,2,3,4,5, 6,7,8,9,10, 11,12,16, 17 13,14,15	Density: kg/m ³ (kg/L or g/ml) Relative Density: none API Gravity: °API	600...1100 Transparent low-viscosity (-2 to 24,5 °C) liquids Opaque (-2 to 24,5 °C) liquids (-1...+101)	Density: R = 1,2 (0,0012) Relative Density: R = 0,0012 API Gravity: R = 0,3 Density: R = 1,5 (0,0015) Relative Density: R = 0,0015 API Gravity: R = 0,5
	Biodiislikütuse (FAME) tiheduse parandustegur q(15) = q(T) + 0,7243 (T-15)	EN 14214						

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.2	Tiheduse määramine. Ostsilleeruva U-toru meetodil. Crude petroleum and petroleum products – Determination of density – Oscillating U-tube Method	EN ISO 12185			1,2,3,4,5, 6,7,8,9,10, 11,12,16, 17	kg/m ³	600...1100	Transparent middle distillates: R = 0,5 Crude oil and other petroleum products: R = 1,5
	Tiheduse määramine digitaalmõõturiga Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		D4052		1,2,3,4,5, 6,7,8,9,10, 11,12,16, 17	g/ml (kg/m ³)	0,71...0,78 (710...780) 0,80...0,88 (800...880)	Density and Relative Density: 0,00190-0,0344(D-0,75) (1) R0,00195-0,0315(D-0,75) (2) 0,00052 (1) 0,00050 (2) D = density or relative density API Gravity: 0,60 + 0,040(G-60) (1) 0,60 + 0,037(G-60) (2) 0,133 (1) 0,128 (2) G = API Gravity value (1) - single determination (2) - average of 2 determinations
	Biodiislikütuse (FAME) tiheduse parandustegur q(15) =q(T) + 0,7243 (T-15)	EN 14214			13,14,15		51...66 29...45	
B.3	Oktaaniarvu määramine mootorimeetodil (MON) <i>Petroleum products – Determination of knock characteristics of motor and aviation fuels – Motor method</i>	EN ISO 5163			1,2,3,4	Octane number (MON)	Motor fuel: 80...90 Aviation fuel: 98 ÷102 Below 80,0 80,0 to 90,0 90,0 to 102,0 102,0 to 103,0 Above 103,0 Scale range: 0...120 Working range: 40...120	- 0,9 no current data 2,0 -
	<i>Standard Test Method for Motor Oktane Number of Spark-Ignition Engine Fuel</i>		D2700	IP 236				0,9

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.4	Oktaaniarvu määramine uurimismeetodil (RON) <i>Petroleum products – Determination of knock characteristics of motor fuels – Research method</i> <i>Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel</i>	EN ISO 5164			1,2,3,4	Octane number (RON)	88...101 Below 90 90,0 to 100,0 101,0 102,0 103,0 104,0 104,0 to 108,0 Scale range: 0...120 Working range: 40...120	- 0,7 1,0 1,4 1,7 2,0 3,5 R = 0,7
B.5	Diislikütuste süütekvaliteedi määramine. Tsetaanmootori meetod <i>Petroleum products – Determination of the ignition quality of diesel fuels - Cetane engine method</i> <i>Standard Test Method for Cetane Number of Diesel Fuel Oil</i>	EN ISO 5165			5,6,7	Cetane number (CN)	30... 65 Scale range: 0...100 40 44 48 52 56	2,8 3,3 3,8 4,3 4,8
B.6	Väavlisalduse määramine energiahajutusega röntgenfluorestsentspektomeetria meetodil <i>Petroleum products -Determination of sulfur content - Energydispersive X-ray fluorescence spectrometry</i>	EN ISO 8754			1,2,3,4,5, 6,7,8,9,10 11,12,16, 17	mass %	≥ 0,03 ≤ 0,05 > 0,05 ≤ 5,00	0,1781 (X + 0,05) 0,0812 (X + 0,15)
	<i>Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry</i>		D4294			mg/kg mass %	16...46 000 0,0016... 4,6	1,9182 · X ^{0,6446} (1,9182((X·10000) ^{0,6446})) /10 000
B.7	Tioolide ja teiste aktiivsete väavliühendite määramine - Doktoritest. <i>Petroleum products and hydrocarbon solvents – Detection of thiols and other sulfur species – Doctor test</i> <i>Standard Test Method for Qualitative Analysis for Active Sulfur Species in Fuels and Solvents (Doctor Test)</i>	EN ISO 5275			5,6,7,8, 10,11,12		Positive (Sour) Negative Sweet)	-
			D4952					

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.8	Üldväävli määramine UV fluorestsentsmeetodil <i>Petroleum products-Determination of sulfur content of automotive fuels-Ultraviolet fluorescence method</i>	EN ISO 20846			1,2,3,4,5, 6,7,8,9,10 11,12,13, 14,15	mg/kg	1...5000 3...60 > 60...500 3...60 > 60...500	Gasolines: $0,1749 \cdot X + 0,96$ $0,1573 \cdot X + 2$ Diesels: $0,1120 \cdot X + 1,12$ $0,1080 \cdot X + 2$
	<i>Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence</i>		D5453		1,2,3,4,5, 6,7,8,9,10 11,12,13, 14,15	mg/kg	1...8000 < 400 1 mg/kg 5 mg/kg 10 mg/kg 50 mg/kg 100 mg/kg 400 mg/kg > 400	$0,5797 \cdot X^{(0,75)}$ 0,6 1,9 3,3 10,9 18,3 51,9 $0,1267 \cdot X$
	<i>Ethanol as a blending component for petrol – Determination of sulphur content - Ultraviolet fluorescence method</i>	EN 15486			16,17	mg/kg	5...20	$0,16X + 1,67$
B.9	Mootorkütuste väävlisisalduse määramine energijahutusega röntgenfluoretsentspektromeetriselt. <i>Petroleum products - Determination of sulfur content of automotive fuels - Energy-dispersive X-ray fluorescence spectrometry</i>	EN ISO 20847			3,4,5,6,7	mg/kg	1...5000 30...500	Gasolines : $0,1116 \cdot X + 11$ Diesels : $0,0169 \cdot X + 12$
B.10	Korrosiivsus vaskpladikatsel <i>Petroleum products – Corrosiveness to copper - Copper strip test</i>	EN ISO 2160			1,2,3,4,5, 6,7,8,9, 10,11,12, 13,14,15, 16,17		Corrosion standards 1...4	1
	<i>Standard Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test</i>		D130	IP 154				

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.11	Naftasaaduste fraktsioonikoostise määramine normaalrõhul. <i>Petroleum products. Determination of distillation characteristics at atmospheric pressure</i>	EN ISO 3405			1,2,3,4,5, 6,7,16,17	°C, vol %	0...400 Group 1 Group 2,3,4 Group 1,2,3 Group 4	Manual method: Table 6 Table 7 Automated method: Table 8 Table 9
	Naftasaaduste fraktsioonikoostise määramine normaalrõhul. <i>Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure</i>		D86		1,2,3,4 5,6,7, 16,17	°C, vol %	0...400 Group 1,2,3,4	Manual/ Automated methods : Annex A.1
	Naftasaaduste fraktsioonikoostise määramine normaalrõhul <i>Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure (Mini Method)</i>		D7344		1,2,3,4 5,6,7,12, 16,17	°C, vol %	20...400 Group 1,2,3,4:	Annex A.2

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.12	Küllastunud aururõhu määramine minimeetodil. <i>Liquid petroleum products – Vapour pressure – Part 1: Determination of air saturated vapour pressure (ASVP) and calculated dry vapour pressure equivalent (DVPE)</i>	EN 13016-1			1,2,3,4	kPa	9...150 at 37,8°C 1 L container 250 ml container	0,01014(X+B) B = 160kPa 2,75 <i>Precision values:</i> 1 l sample at 50,0 °C R = 0,1227 X ^{2/3} 50 ml sample at 37,8 °C R = 0,533 X ^{1/3}
	Küllastunud aururõhu määramine minimeetodil. <i>Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method)</i>		D5191			kPa (psi) kPa psi	7...130 (1,0...18,6) 17,5...102,5 (2,5...14,9)	Table 2 250 mL R = 2,75(0,40 psi) 1L R=0,01014(DVPE+B) DVPE = kPa (psi) B = 160 kPa (23,2 psi)
B.13	Kerge ja keskmiste destillaatkütuste vaigusisalduse määramine jugaaurutusmeetodil. <i>Petroleum products - Gum content of light and middle distillate fuels - Jet evaporation method</i>	EN ISO 6246			1,2,3,4, 5,6,7	mg/100ml	0,1...50 Av.gasoline Av. turbine fuel Unwashed gum Washed gum	2,60 + 0,126 X 2,941 + 0,2794 X 1,333 X 1,06 + 0,5567 X
	Kütuste vaigusisalduse määramine jugaaurutusmeetodil. <i>Standard Test Method for Gum Content in Fuels by Jet Evaporation</i>		D381			mg/100ml	0,1...30 Av. gasoline Av. turbine fuel Unwashed gum Washed gum	2,09 + 0,126 X 2,941 + 0,2794 X 1,928 X ^{0,4} 2,494 X ^{0,3}

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.14	Bensiini oksüdatsioonikindluse määramine induktsiooniperioodi meetodil. <i>Petroleum products – Determination of oxidation stability of gasoline – Induction period method</i> <i>Standard Test Method for Oxidation Stability of Gasoline (Induction Period Method)</i>	EN ISO 7536		D525 IP 40	3,4	min	> 15	10%
B.15	Vaba vesi ja tahked osised, visuaalse uurimise protseduur. <i>Standard Test Method for Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures)</i>		D4176		1,2,3,4, 5,6,7,8, 10,12,16		Pass / Fail Bar Chart 1...5	<i>Procedure 1:</i> not precision <i>Procedure 2:</i> R = 2
B.16	Süsivesinike tüüpide määramine fluorestsindikaatoriga adsorptsioonmeetodil. <i>Petroleum products and related materials - Determination of hydrocarbon types - Fluorescent indicator adsorption method</i>	EN 15553			1,2,3,4,5, 6,7,11,12, 16	vol %	Aromatics: 5...99 Olefins: 0,3...55 Saturates: 1...95	<i>Table 2</i> (not containing oxygenate compounds). <i>Table 3</i> (containing oxygenates) : Aromatics 3,7 Olefins 0,8185X ^{0,6} Saturates 4,2
	Süsivesinike tüüpide määramine fluorestsentsindikaatoriga adsorptsioonmeetodil. <i>Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Absorption.</i>		D1319	IP 156			Aromatics: 5...99 Olefins: 0,3...55 Saturates: 1...95	<i>Table 3</i> (oxygenate free) <i>Table 4</i> (oxygenate containing samples) : Aromatics 3,7 Olefins 0,82 X ^{0,6} Saturates 4,2

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.17	MTBE, ETBE, TAME, DIPE, metanooli, etanooli ja tert-butüüli määramine bensiinis IP-spektoskoopia meetodil. <i>Standard Test Method for Determination of MTBE, ETBE, TAME, DIPE, Methanol, Ethanol and tert-Butanol in Gasoline by Infrared Spectroscopy</i>		D5845		1,2,3,4,16	mass % (vol%)	0,1...20,0 Methanol: 0,1...6,0 Ethanol: 0,1...11,0 tert-Butanol: 0,1÷14,0 DIPE: 0,1...20,0 MTBE: 0,1...20,0 ETBE: 0,1...20,0 TAME: 0,1...20,0 Total Oxygen 0,1...3,5	0,37 0,59 0,59 0,79 0,98 0,77 1,36 0,30
B.18	Tsetaaniindeksi määramine. <i>Petroleum products – Calculation of Cetane Index of Middle-distillate Fuels by the Four-variable equation</i>	EN ISO 4264			5,6,7, 13,14	cetane index	30,5...56,5 (cetane number)	Precision in ISO 3675 or ISO 12185 and ISO 3405
	Tsetaaniindeksi määramine. <i>Standard Test Method for Calculated Cetane Index by Four Variable Equation</i>		D4737		5,6,7, 13,14	cetane index	32,5...56,5 (cetane number)	Precision in D1298 or D4052 and D86
	Destilleeritud kütuste tsetaaniindeksi määramine <i>Standard Test Method for Calculated Cetane Index of Distillate Fuels</i>		D976		5,6,7, 13,14	cetane index	30...60 (cetane number)	±2 cetane numbers for 75% of the distillate fuels
B.19	Oksüdatsioonistabiilsuse määramine. <i>Petroleum products – Determination of the oxidation stability of middle-distillate fuels</i>	EN ISO 12205			5,6,7	g/m ³	0,1...30	10,6 (C/10) ^{0,25}
	Destillaat-kütteõlide oksüdatsioonikindluse määramine (kiirmeetod). <i>Standard Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)</i>		D2274	IP 388	5,6,7	mg/100 ml	0,1...30 0,1 0,5 1,0 1,5 2,0 2,5 3,0	0,60 0,89 1,06 1,17 1,26 1,33 1,40

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulats Range	Korratavus Reproducibility (R)
B.20	Leekpunkti ja süttimistempera- tuuri määramine. Clevelandi avatud tiigli meetod <i>Petroleum products – Determination of flash and fire point – Cleveland open cup method</i>	EN 22592 ISO 2592			7,8,9,10, 11,12	°C	> 79	Flash point 17 °C Fire point 14 °C
	<i>Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester</i>		D92	IP 36			79...400	Flash point 18 °C Fire point 14 °C
B.21	Aurulukuindeks (VLI) ,arvutusmeetod <i>Vapour Lock Index (VLI), calculation method (VLI = 10VP + 7E70)</i>	EN 228 Calculation method	—	—	3,4	Index	600...1300	—
B.22	Leekpunkti määramine Pensky-Martensi suletud tiiglis <i>Determination of flash point – Pensky-Martens closed cup method</i>	EN ISO 2719			Procedure A 5,6,7,13,14 Procedure B 8,9,10, 11,12	°C	> 40 °C 40...250 40...110 170...210 -	<i>Procedure A:</i> Distillates and unused lubricating oils : 0,071X <i>Procedure B:</i> Residual fuels : 6,0 Used lubricating oils: 16,0 Liquids : 10,0
	Leekpunkti määramine Pensky-Martensi suletud tiiglis <i>Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester</i>		D93	IP 34	<i>Procedure A</i> 5,6,7,13,14 <i>Procedure B</i> 8,9,10,11,12 <i>Procedure C</i> 13,14	°C	Petroleum products 40...370 Biodiesel 60...190	<i>Procedure A:</i> 0,071X <i>Procedure B:</i> Residual fuel oil 6 °C Other types 10 °C <i>Procedure C:</i> 14,7 °C
	Leekpunkti määramine Pensky-Martensi suletud tiiglis. <i>Animal and vegetable fats and oils – Flashpoint limit test using Pensky-Martens closed cup flash tester</i>	ISO 15267			15	°C	10...200	Annex A

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulats Range	Korratavus Reproducibility (R)
B.23	Filtreeritavuspunkti määramine <i>Diesel and domestic heating fuels – Determination of cold filter plugging point (CFPP)</i>	EN 116			5,6,7,13,14	°C	- 51...11 - 47...11	3,0 · 0,060 X
	<i>Standard Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels</i>		D6371		5,6,7,13,14	°C	- 51...11	0,102· (25 – X)
B.24	Hangumispunkti määramine <i>Petroleum products – Determination of pour point</i>	ISO 3016			5,6,7,8,9, 10,11,12	°C	- 60...9 - 48...- 6 -33...51	6 Mineral oils, lubricants: 6,43 Fuel oils: 6,59
	Hangumispunkti määramine <i>Standard Test Method for Pour Point of Petroleum Products</i>		D97	IP 15	5,6,7,8,9, 10,11,12	°C	- 60... 9 - 51...- 11 - 33...51	Lubricating Oil: 9,0 °C Precision Values: 8,0 °C Middle Distillate and ResidualFuel: 9,0 °C Precision Values: 6,6 °C
B.25	Hägustumispunkti määramine <i>Petroleum products - Determination of cloud point</i>	EN 23015			5,6,7,8,10, 12,13,14,15	°C	Below 49 °C	Distillate products: 4 °C Other products: 6 °C
	<i>Standard Test Method for Cloud Point of Petroleum Products</i>		D2500	IP 219	5,6,7,8,10, 12,13,14,15	°C	Below 49 °C	4 °C For blends of biodiesel in diesel : 3 °C

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.26	Kinemaatilise viskoossuse määramine <i>Petroleum products – Transparent and opaque liquids – Determination of kinematic viscosity and calculation of dynamic viscosity</i>	EN ISO 3104			5,6,7,8,9,10 11,12,13, 14,15	Kinematic viscosity(ν) mm^2/s Dynamic viscosity(η) $\text{mPa} \cdot \text{s}$ Density (ρ) kg/m^3	1...10000 0,6...6000 600...1100	Residual fuel oil at 50 °C : 0,074 X (7,4%) Residual fuel oil at 80 °C and 100 °C : 0,04 (X+8) Lubricant additives at 100 °C : 0,00862 X ^{1,1} Gas oil at 40 °C : 0,0082 (X+1) Kerosines at -20 °C : 0,019 X Base oils at 40 °C and 100 °C : 0,0065 X (0,65 %) Formulated oils at 40 °C and 100 °C : 0,0076 X (0,76 %) Formulated oils at 150 °C : 0,018 X (1,8%) Petroleum wax at 100 °C : 0,0366 X ^{1,2}
	Kinemaatilise viskoossuse määramine <i>Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dinamic Viscosity)</i>		D445	IP 71		Kinematic viscosity mm^2/s Dynamic viscosity $\text{mPa} \cdot \text{s}$ Density kg/m^3	1...10000 0,6...11000 600...1100	Base oils at 40 °C : 0,0136 X (1,36 %) Base oils at 100 °C : 0,0190 X (1,90 %) Formulated oils at 40 : 0,0122 X (1,22 %) Formulated oils at 100 °C : 0,0138 X (1,38 %) Formulated oils at 150 °C : 0,018 X (1,8%) Petroleum wax at 100 °C : 0,0366 X ^{1,2} Residual fuel oils at 80 and 100 °C : 0,04 (X+8) Residual oil at 50 °C: 0,074 X (7,4%) Additives at 100 °C : 0,00862 X ^{1,1} Gas oil at 40 °C : 0,0082 (X+1) Jet fuels at -20 °C : 0,019 X (1,9%) Kerosine, diesel fuels, biodiesel, biodiesel fuel blends at 40 °C : 0,0224 X (2,24 %)

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.27	Vee määramine naftasaadustes ja bituminoossetes materjalides destilleerimismeetodil. <i>Petroleum products and bituminous materials – Determination of water – Distillation method</i>	ISO 3733			7,8,9,10,12	mahu % massi %	0,0...1,0 1,1...25	0,2 0,2 ml or 10% of the mean, whichever is greater
	<i>Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation</i>		D95	IP 74	7,8,9,10,12	mahu %	0,0...1,0 1,1...25	0,2 0,2 ml or 10%
	<i>Standard Test Method for Water in Crude Oil by Distillation</i>		D4006	IP 358	11		0,0...0,1 > 0,1	Fig. 3 constant at 0,11
B.28	Alumine ja ülemine eripõlemissoojus <i>Standard Test Method for Estimation of Net and Gross Heat of Combustion of Burner and Diesel Fuels</i>	ISO 8217 Annex E	D4868		6,7,8,10,12	MJ/kg	Q _{Net} 30...50 Q _{Gross} 35...55	0,15 -
B.29	Tuhasuse määramine <i>Petroleum products – Determination of ash</i> <i>Standard Test Method for Ash from Petroleum Products</i>	EN ISO 6245	D482	IP 4	5,6,7,8,9, 10,11,12, 13,14	massi %	0,001...0,079 0,080...0,180	0,005 0,024
B.30	Sulfaattuha määramine määrdeõlides ja manustes. <i>Petroleum products - Lubricating oils and additives - Determination of sulfated ash</i>	ISO 3987			5,6,7,8,9, 10,11,12, 13,14	massi %	0,005...0,100 0,110...25,00	0,047 X ^{0,85} 0,060 X ^{0,75}
	<i>Standard Test Method for Sulfated Ash from Lubricating Oils and Additives</i>		D874	IP 163	9	massi %	0,005...0,010 0,110...25,00 0,800...1,600	0,189 X ^{0,85} 0,142 X ^{0,75} 0,1563 X ^{1,40}
B.31	Benseeni määramine, infrapunase spektroskoopia meetodil <i>Liquid petroleum products – Petrol - Determination of the benzene content by Infrared spectrometry</i>	EN 238		IP 429	1,2,3,4, 16,17	mahu % (massi %)	0,1...20 > 1,0 ≤ 1,0	0,3 % (v/v) 0,17 % (v/v)
	<i>Standard Test Method for Determination of Benzene in Spark-Ignition Engine Fuels Using Mid Infrared Spectroscopy</i>		D6277		Gasolines containing oxygenates	mahu % massi %	0,1...5,0 0,1...1,8	(Table 3) FTIR (PLS) : 0,022 + 0,118X FTIR (CLS) 0,099 + 0,031 X

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.32	Naftasaaduste koksiarvu määramine Conradson'i meetodil. <i>Petroleum Products – Determination of carbon residue – Conradson method</i>	ISO 6615			6,7,8,9,10, 11,12,13, 14	massi %	0,01...30,0	$\lg R = -0,51571 + 0,67632 \cdot \lg x + 0,05628 (\lg x)^2$ Fig. 2
	<i>Standard Test Method for Conradson Carbon Residue of Petroleum Products</i>		D189		6,7,8,9,10, 11,12,13, 14	massi %	0,01...30,0	$\text{Log } R = -0,62668 + 0,72403 \cdot \text{Log } x + 0,10730 \cdot (\text{Log } x)^2$ (Fig. 2)
B.33	Naftasaaduste koksiarvu määramine mikromeetodil. <i>Petroleum products – Determination of carbon residue – Micro method</i>	EN ISO 10370			6,7,8,9,10, 11,12,13, 14	massi %	0,01...30,0	$0,2451 \cdot X^{2/3}$ 10% residue $0,2125 X^{0,5}$ (Fig.3)
	Standard testimismeetod määramine koksiarv (Mikro meetod) <i>Standard Test Method for Determination of Carbon Residue (Micro Method)</i>		D4530		6,7,8,9,10, 11,12,13, 14	massi %	0,01...30,0	Fig.3
B.34	Naftasaaduste vaakumdestillatsioon. <i>Standard Test Method for Distillation of Petroleum Products at Reduced Pressure</i>		D1160		7,8,10,11, 13,14	°C	100...600	Table 2 Biodiesel Table 3
B.35	Happe- ja leelisarvu määramine värvusindikaatoriga tiitrimisel. <i>Petroleum products and lubricants – Determination of acid or base number – Colour-indicator titration method</i>	ISO 6618			1,2,3,4,5, 7,8,9,10, 11,12	mgKOH/g	0,00...250,0 ≤ 0,1 > 0,1 to 0,5 > 0,5 to 1,0 > 1,0 to 2,0	0,04 0,08 15% of the level 15% of the level
	<i>Standard Test Method for Acid and Base Number by Color-Indicator Titration</i>		D974	IP 139	1,2,3,4,5, 6,7,8,9, 10,11,12	mgKOH/g	0,00...250,0 0,00 ... 0,1 > 0,1... 0,5 > 0,5...2,0	0,04 0,08 15% of the neutralizati- on number level

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.36	Leelisarvu määramine potentsiomeetrilisel tiitrimisel vesinikkloriidhappega. <i>Standard Test Method for Base Number Determination by Potentiometric Hydrochloric Acid Titration</i>		D4739		1,2,3,4,5 6,7,8,9, 10,11,12	mgKOH/g	0,02...250	Fresh oil and additives: $0,42 (X + 0,0268)^{0,79}$ Used oils: $1,53 X^{0,47}$
B.37	Neutralisatsiooniarvu määramine potentsiomeetrilisel tiitrimisel. <i>Petroleum products and lubricants – Neutralization number – Potentiometric titration method</i>	ISO 6619			1,2,3,4,5 6,7,8,9, 10,11,12	mgKOH/g	0,05...250	Fresh oil and additive: manual 20% automatic 28% Used oils: manual 39% automatic 44%
	Happearvu määramine potentsiomeetrilisel tiitrimisel. <i>Standard Test Method for Acid Number of Petroleum Products by Potentiometric Titration</i>		D664	IP 177	1,2,3,4,5 6,7,8,9, 10,11,12 13,14	mgKOH/g	0,1...150 Method A: Method B:	Fresh oil : $0,141(X+1)$ Used oils : $0,44X$ Biodiesel and blend: $0,177 \cdot X^{0,4}$
B.38	Üldise leelisarvu määramine potentsiomeetrilisel tiitrimisel <i>Petroleum products - Determination of base number - Perchloric acid potentiometric titration method</i>	ISO 3771			1,2,3,4,5 6,7,8,9, 10,11,12	mgKOH/g	0,1...400 Fresh oils and additive concentrates 3...20 > 20 Used oils 3...22 > 20	10 % 6 % 15 % 15 %
	Leelisarvu määramine potentsiomeetrilisel tiitrimisel perkloorhappega. <i>Standard Test Method for Base Number of Petroleum Products by Potentiometric Perchloric Acid Titration</i>		D2896	IP 276	1,2,3,4,5 6,7,8,9, 10,11,12	mgKOH/g	0,1...400 All oils Used oils All oils	7 % (procedure A) 32 % (procedure A) 7 % (procedure B)

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.39	Lennukiturbiinkütuse happesuse määramine. <i>Standard Test Method for Acidity in Aviation Turbine Fuels</i>		D3242	IP 354	4,5	mgKOH/g	0,000...0,100	0,0406 \sqrt{X}
B.40	Vedelate süsivesinike ja nende destilleerimisjääkide happesuse määramine. <i>Standard Test Method for Acidity of Hydrocarbon Liquids and Their Distillation Residues</i>		D1093		1,2,3,4,5 6,7,8,9, 10,11,12, 16		Acidic Basic Neutral	-
B.41	Värvides, värnitsas, pinnakatetes ja nendesarnastes toodetes kasutatavate lenduvate lahustite ja keemiliste vahesaaduste happesuse määramine <i>Standard Test Method for Asidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products</i>		D1613		16,17	massi %	< 0,05	0,0005 % (same) 0,0014 % (two)
	Etanool bensiini komponendina. Üldhappesuse määramine. Värvusindikaatoriga tiitrimise meetod. <i>Ethanol as a blending component for petrol – Determination of total acidity – Colour indicator titration method</i>	EN 15491			16,17	massi %	0,003... 0,015	0,001370
B.42	Lennukikütuste eripõlemissoojuse määramine <i>Standard Test Method for Estimation of Net Heat of Combustion of Aviation Fuels</i>		D3338/ D3338M		4,5	MJ/kg Btu/lb	40,19...44,73 17280...19230	0,046 20
B.43	Naftasaadustes seotud vee määramine kulonomeetriliselt Karl Fischer titratsioonil. <i>Petroleum products – Determination of water – Coulometric Karl Fischer titration method</i>	EN ISO 12937			1,2,3,4,5, 6,7,8,10, 11,12,13, 14,15,16	massi %	0,003...0,100	0,06877X ^{0,5}
	<i>Standard Test Method for Determination of Water In Petroleum Products, Lubricating Oils, and Additives by Coulometric Karl Fischer Titration</i>		D6304		1,2,3,4,5, 6,7,8,9,10 11,12,13, 14,15,16	mg/kg µl/ml massi % mahu %	10...25000 10...25000 0,001...2,5 0,001...2,5	Mass injection: 0,4243 X ^{0,6} % (m/m) Volumetric injection: 0,5248 X ^{0,7} % (v/v)

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.44	Toorõlides vee määramine kulonomeetriliselt Karl Fischer titratsioonil. <i>Standard Test Method for Water in Crude Oils by Coulometric Karl Fischer Titration</i>		D4928	IP 386, MPMS Ch.10.9	11	mahu % massi %	0,01...5,0 0,02...5,0 0,02...5,0	Table 2 0,112(X ^{2/3}) 0,105(X ^{2/3})
B.45	Veesisalduse määramine orgaanilistes lahustes Karl Fischer kulonomeetrilise tiitrimisega <i>Standard Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration</i>		E1064		16,17	massi %	0,0...2,0 0,03 0,42 1,6	15,9 3,2 5,2
	Veesisalduse määramine kulonomeetriliselt Karl Fischer titratsioonil. <i>Ethanol as a blending component for petrol – Determination of water content – Karl Fischer coulometric titration method</i>	EN 15489			16,17	massi %	0,039...0,500 0,020 0,050 0,100 0,200 0,300 0,500	0,01880 (X + 1) 0,0192 0,0197 0,0207 0,0226 0,0244 0,0282
B.46	Tiheduse määramine digitaalmõõturiga <i>Standard Test Method for Density and Relative Density of Crude Oil by Digital Density Analyzer</i>		D5002		11	g/ ml kg/m ³	0,70...1,00 700...1000 0,75...0,95	0,00412 X
B.47	Toornafta hangumispunkti määramine. <i>Standard Test Method for Pour Point of Crude Oils</i>		D5853	IP 441	11	°C	-51...30	Procedure A (max): 18,0 (18) Procedure B (min): 22,0 (21)
B.48	Tahkete osiste määramine keskmistes destillaatides. <i>Liquid petroleum products – Determination of total contamination in middle distillates, diesel fuels and FAME</i>	EN12662			4,5,6,7, 13,14	mg/kg	12...30	0,1644·X + 4,1110
	<i>Standard Test Method for Test Method for Particulate Contamination of Biodiesel B100 Blend Stock Biodiesel Esters and Biodiesel Blends by Laboratory Filtration</i>		D7321		4,5,6,7, 13,14		1...15	1,4625 (X) ^{0,5}
	<i>Standard Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration</i>		D 6217	IP 415	5,6,7	g/m ³ (mg/l)	0,0...25	1,13 (X) ^{0,5}

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.49	Sette määramine toornaftas membraanfiltrereerimise teel. <i>Sediment in Crude Oil by Membrane Filtration</i>		D 4807	MPMS Ch.10.8	11	massi %	0,005...0,15	0,1176 ($X^{1/2}$) (Table 1)
B.50	Sette määramine toornaftas ja kütteõlides ekstraktsioonmeetodil. <i>Crude petroleum and fuel oils – Determination of sediment – Extraction method</i> <i>Sediment in Crude Oils and Fuel Oils by the Extraction Method</i>	EN ISO 3735	D 473	IP 53, MPMS Ch.10.1	7,8,10, 11,12 11	massi %	0,01...0,40	0,033 + 0,255 X
B.51	Lennukikütuste tahkete osistega saastumise määramine (laboratoorse) filtreerimisega. <i>Particulate Contamination in Aviation Fuels by Laboratory Filtration</i>		D 5452	IP 423	4,5	mg/l	0,0...0,6	0,726 $X^{0,5}$
B.52	Vee ja sette määramine jääk-kütteõlides. Tsentrifuugi meetodil (laboratoorne menetlus). <i>Petroleum products – Determination of water and sediment in residual fuel oils – Centrifuge method</i>	ISO 3734			7,8,10,12	mahu %	0,05...3,0	Fig. 3
	Vee ja sette määramine keskmistes destillaatkütustes tsentrifuugi meetodil. <i>Standard test method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)</i>		D 1796	MPMS Ch.10.6	7,8,10,12	mahu %	0,05...3,0 0,1...1,0	Fig. 3 Crude Oil 0,28
	Vaba vee ja tahkete osiste määramine tsentrifuugi meetodil <i>Standard test method for Water and Sediment in Middle Distillate fuels by Centrifuge</i>		D 2709		5,6,7	mahu %	0,05...3,0	0,041
	Vaba vee ja tahkete osiste määramine töötlemata õlides tsentrifuugi meetodil (laboratoorne menetlus) <i>Standard test method for Water and Sediment in Crude Oils by the Centrifuge Method (Laboratory Procedure)</i>		D 4007	MPMS Ch.10.3	11	mahu %	0,05...0,3 0,3...1,0	Fig. 3 0,28

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.53	Benseeni ja tolueni sisalduse määramine pliivabas bensiinis, gaaskromatograafiliselt <i>Liquid petroleum products. Unleaded petrol. Determination of benzene content by gas chromatography</i>	EN ISO 12177			1,2,3	mahu %	0,05...0,15 > 0,15...1,50 > 1,5... 6,00	0,01 0,10 0,25
	Benseeni ja tolueni gaaskromatograafiline määramine auto- ja lennukibensiinis. <i>Standard Test Method for Determination of Benzene and Toluene in Finished Motor and Aviation Gasoline by Gas Chromatography</i>		D3606		3,4	mahu %	Benzene: 0,1...5 0,1...1, 5 > 1,5 Toluene: 2...20 1,7...9 > 9	0,13(X) + 0,05 0,28(X) 0,12(X) + 0,07 1,15
B.54	Jääk-kütteõlide puhtuse ja kokkusobivuse määramine tilgakatsega. <i>Standard Test Method for Cleanliness and Compatibility of Residual Fuels by Spot Test</i>		D4740		7,8,10,11, 12		1...5	1
B.55	Plii väikeste kontsentratsioonide määramine AAS meetodil <i>Liquid petroleum products – Petrol – Determination of low lead concentration by atomic absorption spectrometry</i>	EN 237			1,2,3,4	mg/l	2,5...10	0,62
	Plii määramine bensiinis AAS meetodil. <i>Standard Test Method for Lead in Gasoline by Atomic Absorption Spectroscopy</i>		D3237		3	mg/l	2,5...25	2,6
B.56	Elektrijuhtivuse määramine <i>Standard Test Method for Electrical Conductivity of Aviation and Distillate fuels</i>		D2624	IP 274	3,4,5,6	pS/m	1...3000 1...1500	Table 1

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.57	Organilise värvaine Automate Blue 8GHF määramine <i>Determination of marker Automate Blue 8GHF</i>			VV määrus 148/2014 Lisa 3	6	mg/l	1...20	0,5
	Erimärgistusaine Solvent Yellow 124 määramine <i>Determination of marker Solvent Yellow 124</i>			VV määrus 148/2014 Lisa 1	6,7	mg/l	1...15	0,5
	Organilise värvaine Automate Red NR määramine <i>Determination of marker Automate RED NR</i>			VV määrus 148/2014 Lisa 2	7	mg/l	1...10	0,5
B.58	Värvuse määramine ASTM skaala järgi <i>Petroleum products – Determination of color (ASTM scale)</i> <i>Standard Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)</i>	ISO 2049	D1500	IP 196	1,2,3,4, 5,6,7,8, 10,12,16	ASTM Color Unit	0,5...8	1
B.59	Värvuse määramine Saybolt Chromomeeter meetodil. <i>Standard Test Method for Saybolt Color of Petroleum Products</i>		D156		1,2,3,4, 5,6,7,8, 10,12,16	Saybolt Color Unit	-16...0...+30	2
B.60	Värvuse määramine automaatse ühtluse meetodil. <i>Standard Test Method for Color of Petroleum Products by the Automatic Tristimulus Method</i>		D6045		1,2,3,4, 5,6,7,8, 10,12, 16,17	Saybolt Color Unit ASTM Color Unit	-16...0...+30 0,5...8	1,24 (D156) 0,48 (D1500)

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.61	Orgaaniliste hapnikku sisaldavate ühendite ja summaarse orgaanilise hapnikusisalduse gaasikromatograafiline määramine <i>Liquid petroleum products. Unleaded petrol. Determination of organic oxygenate compounds and total organically bound oxygen content by gas chromatography using column switching</i>	EN 13132			1,2,3	mahu % (massi %)	0,17...15,0 0,1...1,0 > 1,0...3,0 > 3,0...5,0 > 5,0...7,0 > 7,0...9,0 > 9,0...11,0 > 11,0...13,0 > 13,0...15,0 Oxygen: 0,01... 3,7 1,5...3,0	0,1 0,3 0,4 0,5 0,6 0,8 0,9 1,0 0,3
	MTBE, ETBE, TAME, DIPE määramine gaasikromatograafiliselt <i>Standard Test Method for Determination of MTBE, ETBE, TAME, DIPE, tertiary-Amyl Alcohol and C₁ to C₄ Alcohols in Gasoline by Gas Chromatography</i>		D4815		1,2,3	massi %	Ethers : 0,2...20 Alcohols: 0,2...12 Total Oxygen: 0,02...3,7	Methanol (MeOH) 0,37(X ^{0,61}) Ethanol (EtOH) 0,23(X ^{0,57}) Isopropanol (iPA) 0,42(X ^{0,67}) tert-Butanol (tBA) 0,19(X ^{0,67}) n-Propanol (nPA) 0,11(X ^{0,57}) MTBE 0,12(X ^{0,67}) sec-Butanol (sBA) 0,44(X ^{0,67}) DIPE 0,42(X ^{0,67}) Isobuanol (iBA) 0,42(X ^{0,67}) ETBE 0,36(X ^{0,76}) tert-Pentanol (tAA) 0,15(X ^{0,57}) n-Butanol (nBA) 0,22(X ^{0,57}) TAME 0,31(X ^{0,51}) Total Oxygen 0,09(X ^{1,27})
B.62	Merkaptaanväävli määramine. <i>Standard Test Method for Mercaptan Sulfur in Gasoline, Kerosine, Aviation Tyrbine and Distillate Fuel (Potentiometric Method)</i>		D3227	IP 342	1,2,3,4, 5,6,7	massi %	0,0003...0,01	0,00031 + 0,042x

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.63	Orgaanilist hapnikku sisaldavate ühendite ja summaarse orgaanilise hapnikusisalduse gaasikromatograafiline määramine (OFID). <i>Liquid petroleum products – Unleaded petrol – Determination of organic oxygenate compound and total organically bound oxygen content by gas chromatography (O-FID)</i>	EN 1601			1,2,3	massi % (mahu %)	0,17...15,0 0,1...1,0 > 1,0...3,0 > 3,0...5,0 > 5,0...7,0 > 7,0...9,0 > 9,0...11,0 > 11,0...13,0 > 13,0...15,0	0,1 0,3 0,4 0,5 0,6 0,8 0,9 1,0
	Oksügenaatide määramine leekionisatsioonidetektoriga <i>Standard Test Method for Determination of Oxygenates in Gasoline by Gas Chromatography and Oxygen Selective Flame Ionization Detection</i>		D5599		1,2,3	massi %	0,1...20 0,20...12,00 1,00...20,00	Methanol (MeOH) 0,25(X ^{0,86}) Ethanol (EtOH) 0,27(X ^{0,80}) Isopropanol (iPA) 0,21(X ^{0,71}) tert-Butanol (tBA) 0,20(X ^{0,80}) n-Propanol (nPA) 0,17(X ^{0,88}) MTBE 0,10(X ^{0,95}) sec-Butanol (sBA) 0,17(X ^{0,73}) DIPE 0,16(X ^{0,71}) Isobuanol (iBA) 0,19(X ^{0,83}) ETBE 0,25(X ^{0,79}) tert-Pentanol (tAA) 0,18(X ^{0,55}) n-Butanol (nBA) 0,22(X ^{0,30}) TAME 0,24(X ^{0,69}) Total Oxygen 0,13(X ^{0,83})
B.64	Viskoossusindeksi arvutamine kinemaatilisest viskoossusest 40 °C ja 100 °C juures <i>Petroleum products – Calculation of viscosity index from kinematic viscosity</i>	ISO 2909			8,9,10		< 100 100...200	Procedure A: Table 2 Procedure B: Table 3
	<i>Standard Practice for Calculating Viscosity Index from Kinematic Viscosity at 40°C and 100 °C</i>		D2270	IP 226			10...200 79 to 164 93 to 150	2 (D445) 2 (D7042)

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.65	Aromaatsete süsivesinike klasside määramine keskmiste destillaatides kõrgsurvevedelikkromatograafiliselt. <i>Petroleum products – Determination of aromatic Hydrocarbon types in middle distillates – High performance liquid chromatography method with refractive index detection</i>	EN 12916		IP 391	6,7	% (m/m)	Mono-aromatic hydrocarbons (MAH) 6...30 Di-aromatic hydrocarbons (DAH) 1...10 Tri+-aromatic hydrocarbons (T+AH) 0,0...2 Polycyclic aromatic hydrocarbons (POLY-AH) 1...12 Total aromatic hydrocarbons 7...42	0,144 X – 0,344 0,363 X – 0,087 0,442 X + 0,471 0,185 X + 0,465 0,172 X – 1,094
	Aromaatsete süsivesinike kromatograafilise määramine diislikütustes <i>Determination of Aromatic Hydrocarbon Types in Middle Distillates – High Performance Liquid Chromatography Method with Refractive Index Detection</i>		D6591	IP 548	6,7	massi %	MAH 4,0...40 DAH 0,0...20 T+AH 0,0...6 POLY-AH 0,0...26 Total AH 4,0...65	0,63 (X + 17,3) 0,32 (X + 1,8) 0,64 (X + 0,3) 0,29 (X + 2,5) 0,116 (X + 6,3)
	Aromaatsete süsivesinike sisalduse määramine. <i>Determination of Aromatic Hydrocarbon Types in Aviation Fuels and Petroleum Distillates - High Performance Liquid Chromatography Method with Refractive Index Detection</i>		D6379	IP 436	5	massi %	Mono-aromatics 10...25 10,5...24,1 Di-aromatics 0,0...7 0,1...6,64 Total aromatics 10,6...29,8	0,261 X ^{0,667} 0,514 X ^{0,333} 0,278 X ^{0,667}

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.66	Mangaani määramine bensiinis AAS meetodil. <i>Standard Test Method for Manganese in Gasoline by Atomic Absorption Spectroscopy</i>		D3831		1,2,3,4	mg Mn/L	0,25...40	$1,650\sqrt{(x + 0,1062)}$
B.67	Baariumi, kaltsiumi, magneesiumi ja tsingi määramine kasutamata määrendeõlides AAS meetodil. <i>Standard Test Method for Analysis of Barium, Calcium, Magnesium, and Zink in Unused Lubricating Oils by Atomic Absorption Spectrometry</i>		D4628		7,8,9, 10,11,12	massi %	Ba: 0,005...1,0 Ca: 0,002...0,3 Mg: 0,002...0,3 Zn: 0,002...0,2 Ca: 1,7 Zn: 1,0	$0,182 x^{2/3}$ $0,0779 x^{2/3}$ $0,0705 x^{2/3}$ $0,0537 x^{2/3}$ 0,090 0,048 (Table 3,4)
B.68	Naftasaaduste destillaatide ja küllastumata süsivesinike broomiarvu määramine elektrometrilisel meetodil. <i>Petroleum products – Determination of bromine number of distillates and aliphatic olefins – Electrometric method</i> <i>Standard Test Method for Bromine Numbers of Petroleum Distillates and Commercial Aliphatic Olefins by Electrometric Titration</i>	ISO 3839	D1159	IP 130	5,6,7,8, 10,11,12	g Br ₂ /100g	0,1...200 > 200	Petroleum distillates: - 90% distil.point < 205 °C: 0,72 (X ^{0,70}); - 90% distil.point 205...327 °C : 0,78 (X ^{0,67}) Commercial olefins: 12
B.69	Nikli, vanaadiumi, naatriumi ja raua sisalduse määramine toorõlides ja setetega kütustes AAS meetodil. <i>Standard Test Method for Determination of Nickel, Vanadium, Iron, and Sodium in Crude Oils and Residual Fuels by Flame Atomic Absorption Spectrometry</i>		D5863		7,8,10, 11,12	mg/kg	1...500 Vanadium: 50...500 Nickel: 10...100 Iron: 3...10 Sodium: 1... 20	method A: $0,33X^{0,90}$ method B: $1,2X^{0,80}$ method A: $1,3X^{0,53}$ method B: $0,06X^{1,2}$ method A: $1,45 X^{0,45}$ method B: $0,69X$

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.70	Alumiiniumi ja räni määramiseks kütteõlides tuhastamisjärgselt ICP-AAS-iga. <i>Standard Test Method for Determination of Aluminium and Silicon in Fuel Oils by Ashing, Fusion, Inductively Coupled Plasma Atomic Emission Spectrometry, and Atomic Absorption Spectrometry</i>		D5184	–	5,6,7,8, 10,11,12	mg/kg	Aluminium : 5...150 1...139 Silicon : 10...250 10...236	0,7890 · X ^{2/3} (AAS) 0,337 · X (ICP) 1,338 · X ^{2/3} (AAS) 0,332 · X (ICP)
	<i>Petroleum products – Determination of aluminium and silicon in fuel oils – Inductively coupled plasma emission and atomic absorption spectroscopy method</i>	ISO 10478					Aluminium : 5...150 Silicon : 10...250	0,7890 · X ^{2/3} (AAS) 0,337 X (ICP) 1,338 · X ^{2/3} (AAS) 0,332 · X (ICP)
B.71	Määrimisvõime määramine. <i>Diesel fuel - Assessment of lubricity using the High-frequency reciprocating rig (HFRR) - Part 1 : Test method</i>	EN ISO 12156-1 ISO/DIS 12156-1: 2015			5,6,7	µm	100...600	102
	<i>Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR)</i>		D6079			µm	100...600	90 (Method B) 80
B.72	Etanooli sisalduse määramine denatureeritud kütuse etanoolis gaasikromatograafiliselt <i>Standard Test Method for Determination of Ethanol Content of Denatured Fuel Ethanol by Gas Chromatography</i>		D5501		16,17	mass %	EtOH : 20...100 MeOH : 0,01...0,6	5,707 / X ^{0,6} 0,1209 (X + 0,1037) Precision Values: Table 4

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.73	Rasvhapete metüülestrite (FAME) sisalduse määramine vedelate naftasaaduste keskmistes destillaatides infrapunaspektroskoopia meetod. <i>Liquid petroleum products - Determination of fatty acid methyl esters (FAME) content in middle distillates - Infrared spectroscopy method</i>	EN 14078			5,6,7	mahu %	0,05...3,0 3,0...20,0 Domestic heating oil with FAME content of approx. 0,06% (v/v)	0,0499·X + 0,0231 0,0793·X – 0,0413 0,015
B.74	Rasvhapete metüülestrite (FAME) happearvu määramine. <i>Oil and fat derivatives - Fatty Acid Methyl Esters (FAME) - Determination of acid value</i>	EN 14104			13,14	mg KOH/g	0,10...1,00	0,06
B.75	Rasvhapete metüülestrite (FAME) joodiarvu määramine. <i>Oil and fat derivatives - Fatty Acid Methyl Esters (FAME) - Determination iodine value</i>	EN 14111			13,14	g J ₂ /100g	> 1,0	5
B.76	Rasvhapete metüülestrite (FAME) naatriumisalduse määramine AAS meetodil. <i>Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of sodium content by atomic absorption spectrometry</i>	EN 14108			13,14	mg/kg	≥ 1,0	0,263·X + 1,355
B.77	Rasvhapete metüülestrite (FAME) kaaliumisisalduse määramine AAS meetodil. <i>Fat and Oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of potassium content by atomic absorption spectrometry</i>	EN 14109			13,14	mg/kg	≥ 0,5	0,505·X + 0,522
B.78	Rasvhapete metüülestrite (FAME) metanoolisisalduse määramine. <i>Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of methanol content</i>	EN 14110			13,14	massi %	0,01...0,5	0,221·X + 0,003
B.79	Rasvhapete metüülestrite (FAME) - Oksüdatsioonilise stabiilsuse määramine <i>Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of oxidation stability (accelerated oxidation test)</i>	EN 14112			13,14	hours (h)	> 0,001	0,26·X + 0,23

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.80	Rasvhapete metüülestrid (FAME) - Estri ja linoleenhape metüülestri sisalduse määramine <i>Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) – Determination of ester and linolenic acid methyl ester content</i>	EN 14103			13,14	massi %	FAME > 90% Linolenic acid 1...15 For ester content: For linolenik AME content :	4,16 (% m/m) 0,3872 + 0,0285 ·X
	Loomsed ja taimsed rasvad ja õlid. Rasvhapete metüülestrite gaasikromatograafiline analüüs <i>Anamal and vegetable fats and oils – Analysis by gas chromatography of methyl esters of fatty acid</i>	EN ISO 5508:2000			13,14,15	massi %	FAME < 90% FAME > 90%	3 0,5
B.81	Rasvhapete metüülestrid (FAME) kui mootorikütused diiselmootorite jaoks. Vaba ja kogu glütserooli ning mono-, di- ja triglütseriidide sisalduse määramine <i>Automotive fuels Fatty Acid Methyl Esters (FAME) for diesel engines. Determination of free and total glycerol and mono, di-, and triglyceride content</i>	EN 14105			13,14	massi %	Free glycerol > 0,001 Monoglycerides > 0,10 Diglycerides > 0,10 Triglycerides > 0,10 Total glycerol > 0,10	0,1833·X + 0,0061 0,1867·X + 0,0654 0,1885·X + 0,0289 0,3180·X + 0,0520 0,1902·X + 0,0115
	Vaba ja kogu glütserooli ning mono-, di- ja triglütseriidide sisalduse määramine. <i>Test Method for Determination of Free and Total Glycerin in B-100 Biodiesel Methyl Esters by Gas Chromatography</i>		D6584		13,14	massi %	Free glycerin 0,0005714...0,01 9533 Monoglycerides 0,009...0,7786 Diglycerides 0,092353...0,544 75 Triglycerides 0,00092857... 1,3881 Total glycerin 0,0090714... 0,42767	0,246 E ⁻⁰¹ (FG+0,0001) ^{0,27} 0,46 (M ^{0,62}) 0,784 (D ^{0,93}) 1,08 (T ^{0,687}) 0,29 (TG ^{0,73})

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.82	Rasva ja õli derivaadid. Rasvhapete metüülestrid (FAME). - Vaba glütserooli määramine <i>Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) – Determination of free glycerol content</i>	EN 14106			13,14	mass %	0,005...0,070	0,7812·X + 0,0032
B.83	Rasva ja-õli derivaadid. Rasvhapete metüülestrid (FAME) diiselmootorite jaoks. Polüküllastumata (= 4 kaksiksidemete) rasvhapete metüülestrite (PUFA) määramine gaasikromatograafiliselt <i>Petroleum products and fat and oil derivatives – Fatty acid methyl esters (FAME) for diesel engines Determination of polyunsaturated (=4 double bonds) fatty acid methyl esters (PUFA) by gas chromatography</i>	EN 15779			13,14	mass %	0,1...3,0	0,27
B.84	Vedelad naftasaadused. Kütuste keskmistest destillaatidest rasvhapete metüülestrite (FAME) eraldamine ja iseloomustamine. Vedelikkromatograafia (LC) / gaaskromatograafia (GC) meetod <i>Liquid petroleum products - Separation and characterisation of fatty acid methyl esters (FAME) by liquid chromatography/gas chromatography (LC/GC)</i>	EN 14331			6,7,13, 14, 15	mass %	FAME < 5% Palmitic acid (C16:0) Oleic acid (C18:1) Linolenic acid (C18:3)	0,8 2,8 1,8
B.85	Happearvu ja happesuse määramine rasvades ja õlides. <i>Animal and vegetable fats and oils - Determination of acid value and acidity</i>	EN ISO 660			15	Acid value: mgKOH/g Acidity: mass %	0,001...150 0,08...128,1 FFA	Table A.1 Table A.2; A.3
B.86	Niiskuse ja lenduvate ühendite sisaldus määramine rasvades ja õlides. <i>Animal and vegetable fats and oils - Determination of moisture and volatile matter content</i>	EN ISO 662			15	mass %	0,001... 1,0 < 0,15 0,017... 0,27	0,3 Method A : Table A .1 Method B : Table A.2
B.87	Lahustumatute lisandite sisalduse määramine rasvades ja õlides. <i>Animal and vegetable fats and oils - Determination of insoluble impurities content</i>	EN ISO 663			15	mass %	0,001...1,0 0,004...0,025	Table A.1

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.88	Loomsed ja taimsed rasvad ja õlid. Seebistumisarvu määramine. <i>Animal and vegetable fats and oils - Determination of saponification value</i>	EN ISO 3657			15	value	50...500 190,2...334,1	Table A.1
B.89	Loomsed ja taimsed rasvad ning õlid - Joodiarvu määramine <i>Animal and vegetable fats and oils - Determination of iodine value</i>	EN ISO 3961			15	g/100g	0,1...200	Table A.1,A.2,A3
B.90	Mitteseebistuvate ainete määramine dietüüleetriga ekstraktsiooni meetodil. <i>Animal and vegetable fats and oils - Determination of unsaponifiable matter - Method using diethyl ether extraction</i> <i>Animal and vegetable fats and oils - Determination of unsaponifiable matter - Method using hexane extraction</i>	EN ISO 3596 EN ISO 18609			15	mass %	0,01...1	Tables A.1, A.2, A.3
B.91	Alküülnitraatide määramine diislikütustes. <i>Petroleum products - Determination of alkyl nitrate in diesel fuels - Spectrometric method</i>	EN ISO 13759			5,6,7	mahu % (% v/v)	0,03...0,30	0,036
	<i>Standard Test Method for Alkyl Nitrate in Diesel Fuels by Spectrophotometry</i>		D4046					
	<i>Standard Test Method for Amyl Nitrate in Diesel Fuels</i>		D1839			% v/v	0,1...0,5	0,10 % (v/v)
B.92	Keskmiselt destilleeritud kütuste oksüdatsioonistabiilsuse määramine <i>Automotive fuels - Fatty acid methyl ester (FAME) fuel and blends with diesel fuel - Determination of oxidation stability by accelerated oxidation method</i>	EN 15751			13, 14	tund (h) hours	0,1...60 (FAME > 2%)	0,37269 + 0,19038X

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.93	Leekpunkti määramine suletud tiigli meetodil. <i>Determination of flash point - Rapid equilibrium closed cup method</i>	EN ISO 3679			1,2,5,6,7, 8,9,10,11 12,13,14, 15,16,17	°C	- 30...300 20...220 4...175	Petroleum anad related products 0,02561 (X + 110) Table 3 Other products Table 2
	<i>Standard Test Methods for Flash Point by Small Scale Closed Cup Tester</i>		D3828		1,2,5,6,7, 8,9,10,11 12,16,17 13,14,15	°C	- 30...300 20...210	0,02561 (X + 110) Table 2
B.94	Peroksiidaru määramine <i>Animal and vegetable fats and oils - Determination of peroxide value</i>	EN ISO 3960	–	–	15	meq/kg	0,0 ...30 0,71...26,93	Tables A.1; A.2
	<i>Animal and vegetable fats and oils - Determination of peroxide value - Potentiometric end-point determination</i>	EN ISO 27107	–	–	15	meq/kg	0,01...30 0,61...27,3	Tables B.1; B.2
B.95	Fosfori sisalduse määramine kolorimeetriliselt. <i>Animal and vegetable fats and oils - Determination of phosphorus content - Part 1: Colorimetric method</i>	EN ISO 10540-1			15	mg/kg	0,5...500 10 50 100 300 400	6 18 41 105 135
B.96	Lennukikütuse külmumispunkti määramine. <i>Freezing point of Aviation Fuels</i>		D2386	IP 16	4,5	°C	- 65...20	2,5
B.97	Mittetahmava leegi kõrguse määramine. <i>Determination of the smoke point of kerosine</i>	ISO 3014			5	mm	15...45	3
	<i>Smoke Point of Kerosine and Aviation Turbine Fuel</i>		D1322	IP 598			15...42	0,09363 (X + 16) (Table 2, Fig.9)

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.98	Värvitud lennukibensiinide värvuse määramine. <i>Color of Dyed Aviation Gasolines</i>		D2392		4	Color	Acceptable or fail	—
B.99	Vee reaktsioon lennukikütustes <i>Water Reaction of Aviation Fuels</i>		D1094		4,5	ml Rating of the degree of separation Rating of the condition of the interface	1,0...100 1...3 1...4	0,5 1 1
B.100	Plii määramine bensiinis joodmonokloriidi meetodil. <i>Standard Test Method for Lead in Gasoline – Iodine Monochloride Method</i>		D3341		1,2,3,4	g Pb/L	0,026...1,3	$0,0135 + 0,027 \cdot A_2$ $A_2 =$ the average of the results at 15,5 °C
B.101	Oksüdatsioonikindluse määramine lennukikütustes (potensiaalse jäägi määramine) <i>Standard Test Method for Oxidation Stability of Aviation Fuels (Potential Residue Method)</i>		D873	IP 138	4,5	mg/100 ml mg/100 ml	Potential gum Precipitate	16 hours aging : Av.engine fuel Av.turbine fuel 3 4 4 5 6 7 1 —
B.102	Klooriiooni määramine tööstuskemikaalides potentsiomeetrilise meetodiga. <i>Chemical products for industrial use. Determination of chloride ions - Potentiometric method</i>	ISO 6227			16,17	mg/l	1...1500	—
	Klooriioonide määramine veest <i>Standard Test Method for Chloride Ion In Water</i>		D512		16,17	mg/l	2...1000	Method C: Fig.1; Fig.2
	<i>Ethanol as a blending component for petrol – Determination of inorganic chloride – Potentiometric method</i>	EN 15484			16,17	mg/l	4...30	1,6

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.103	Vesinikusisalduse määramine lennukikütustes. <i>Estimation of Hydrogen Content of Aviation Fuels</i>		D3343		3,4	% H	11,0...14,6	0,10 %
B.104	Etanooli, denatureeritud kütuseetanooli ja kütuseetanooli (Ed75-Ed85) pH määramine. <i>Standart Test Method for Determination of pHe of Ethanol, Denatured Fuel Ethanol, and Fuel Ethanol (Ed75-Ed85)</i>		D6423		16,17	pH value	4...11	0,9078 (10,2301 – X) ^{0,1584}
	<i>Ethanol as a blending component for petrol – Determination of pHe</i>	EN 15490					5...9	0,096 X
B.105	Fosforisisalduse määramine ammoniummolüüdaat spektromeetriliselt <i>Ethanol as a blending component for petrol – Determination of phosphorus content – Ammonium molybdate spectrometric method</i>	EN 15487			16, 17	mg/l	0,15...1,50	0,09X + 0,06
	Fosforisisalduse määramine bensiinis <i>Determination of Phosphorus in Gasoline</i>		D3231		1,2,3,4, 16, 17	mg P/l	0,2...1,3 1,3...40	0,13 13 %
B.106	Etanool bensiini komponendina. Välimuse määramine visuaalselt. <i>Ethanol as a blending component of petrol - Determination of appearance – Visual method</i>	EN 15769			16, 17	Visual method	clear or turbid; colourless or coloured	–
B.107	Etanool bensiini komponendina. – kuivjäägi määramine gravimeetriliselt. <i>Ethanol as a blending component for petrol – Determination of total dry residue (involatile material) – Gravimetric method</i>	EN 15691			16, 17	mg/100 ml	10...25	0,1848 X + 0,00081
B.108	Vesiniksulfiid- ja merkaptaanväävli määramine vedelates süsivesinikes potentsiomeetrilise tiitrimisega. <i>Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration</i>			UOP 163-10	1,2,3,4, 5,6,7,8, 10,11,12	ppm (mg/kg)	Mercaptan (as sulfur) ≥ 0,2 Hydrogen sulfide ≥ 1,0	0,1 0,5

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.109	Etanool bensiini komponendina ja etanool kütusena (E85). Elektri juhtivuse määramine. <i>Ethanol blending component and ethanol fuel . Determination of electrical conductivity</i>	EN 15938			16, 17	µS/cm	0,3...5	0,0685 + 0,1191 X
B.110	Dünaamilise viskoossuse ja vedeliku tihedus määramine Stabinger'i viskosimeetriga (ja kinemaatilise viskoossuse arvutamine) <i>Dynamic Viscosity and Density of Liquid by Stabinger Viscometer (and the Calculation of Kinematic Viscosity)</i>		D7042		1,2,3,4, 5,6,7,8, 9,10,11, 12,13,14, 15,16, 17	mPa·s mm ² /s g/cm ³ VI	Dynamic viscosity 0,6...11000 Kinematic viscosity 1...10000 Density 0,6...1,1 Viscosity index 10...200	Table 3 0,45% 0,5 -
B.111	Sädesüütega mootorkütuste oksüdatsioonikindluse määramine kiire väikesemahulise oksüdeerimise katsel. <i>Oxidation Stability of Spark Ignition Fuel – Rapid Small Scale Oxidation Test</i>		D7525		3,4,17	minutes	> 1	1,0212 · X ^{0,6}
B.112	Kütuste keskmiste destillaatide oksüdatsiooni stabiilsust määramine. <i>Oxidation Stability of Middle Distillate Fuels</i>		D7545		6,7,13, 14	minutes	> 1	0,0863 · X + 1,3772
	<i>Liquid petroleum products – Middle distillates and fatty acid methyl ester (FAME) fuels and blends – Determination of oxidation stability by rapid small scale oxidation method</i>	EN 16091			6,7,13, 14	minutes	> 1 FAME 22...215	0,0863 · X + 1,3772

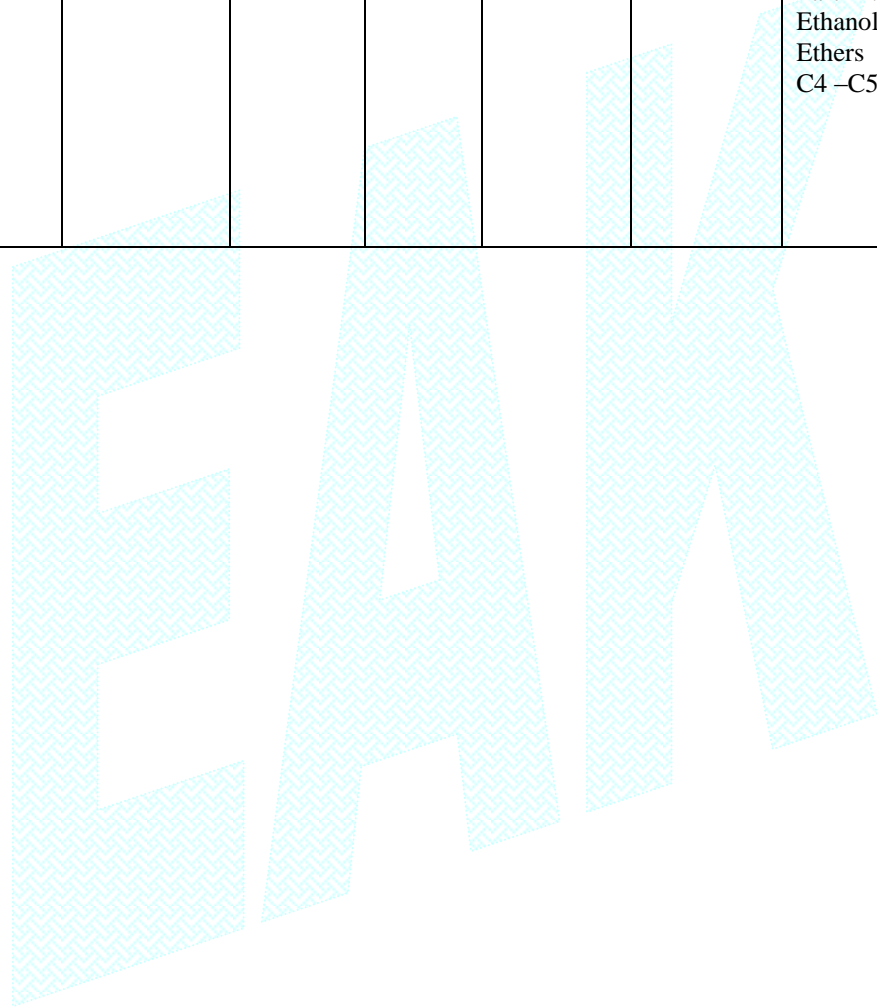
nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.113	Naftasaaduste seebistesarvu määramine potentsiomeetrilisel tiitrimisel. <i>Saponification Number of Petroleum Products by Potentiometric Titration Determination of saponification number - Part 1: Color indicator titration method</i> <i>Part 2: Potentiometric titration method</i>	ISO 6293-1 ISO 6293-2	D 94 D 939	IP136S1/98, 136S2/99	7,8,9,10, 11,12,16	mgKOH/g	0...400 2...200 0...400 0...5 > 5	0,74 \sqrt{X} Fig.1 (Method A) 10,4 (Method B) 0,4 8%
B.114	Naftasaadused.Summaarse sette määramine jääkkütteõlides. <i>Total sediment in residual fuel oil.</i>	ISO 10307-1 ISO 10307-2	D4870	IP 375 IP 390 (A)	7,8,9,10, 11,12	massi %	Distillate fuels < 0,4 Residual fuels < 0,5	0,174 \sqrt{X} 0,294 \sqrt{X}
B.115	Oksüdatsioonistabiilsuse määramine <i>Animal and vegetable fats and oils - Determination of oxidative stability (accelerated oxidation test)</i>	EN ISO 6886			15	hours	> 0,1 2...45	Tables B.1; B.2; B.3 < 29%
B.116	Naftaleeni analüüs, USFM meetod <i>Standard Test Method for Naphthalene Hydrocarbons in Aviation Turbine Fuels by Ultraviolet Spectrophotometry</i>		ASTM D1840		4, 5	% v/v	Procedur A 0,03...4,25 Procedur B 0,08...5,6	0,0299 $\cdot (1,00 + X)$ 0,094 $\cdot X^{0,6}$
B.117	Ca, Mg ja Na, K määramine <i>Fat and oil derivatives – Fatty acid methyl ester (FAME) – Determination of Ca, K, Mg and Na content by optical emission spectral analysis with inductively coupled plasma (ICP OES)</i>	EN 14538			13, 14	mg/kg	Ca 1,0 ... 10 Mg 1,0 ... 10 Na 1,0 ... 10 K 1,0 ... 10	Ca + Mg : 0,149 $\cdot X + 1,186$ Na + K : 0,191 $\cdot X + 0,941$
B.118	Fosfori määramine <i>Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of phosphorus content by inductivity coupled plasma (ICP) emission spectrometry</i>	EN 14107 EN 16294			13, 14	mg/kg	4,0...20 2,5...8,0	0,192 $\cdot X + 0,025$ 0,1305 $\cdot X + 0,9136$

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.119	Loomsed ja taimsed rasvad ja õlid. Veesisalduse määramine. Karl Fischeri meetod (püridiinivaba) <i>Animal and vegetable fats and oils – Determination of water content – Karl Fischer method (pyridine free)</i>	EN ISO 8534			15	g/100g	0,0...10	Table A.1
B.120	Lennukikütustes vee-eraldatavuse määramine portatiivse separomeetriga <i>Standard Test Method for Determination Water Separation Characteristics of Aviation Turbine by Portable Separometer</i>		D3948		4, 5	Rating	1...100 50...100	Fig. 9, 10
B.121	Loomsed ja taimsed rasvad ja õlid. Fosfori määramine ICP-iga <i>Animal and vegetable fats and oils -- Determination of phosphorus content -- Part 3: Method using inductively coupled plasma (ICP) optical emission spectroscopy</i>	ISO 10540-3			15	mg/kg	0,1...15 15...500	Table A.2 Table A.1
B.122	Leekpunkti määramine - Abeli suletud tiigli meetod <i>Determination of flash point – Abel closed cup method</i>	EN ISO 13736		IP 170	1,2,3,12, 16,17	°C	- 30,0 ...75,0	3,2
B.123	Alumiiniumi, räni, vanaadiumi, nikli, raua, naatriumi, kaltsiumi, tsingi ja fosfori määramine jääkkütustes. <i>Determination of Aluminium, silicon, vanadium, nickel, iron, sodium, calcium, zinc and phosphorus in residual fuel oil by using, fusion and inductively coupled plasma emission spectrometry</i>			IP 501	7,8,10,11, 12	mg/kg	Aluminium: 5...150 Silicon: 10...250 Sodium: 1...100 Vanadium: 1...400 Nickel: 1...100 Iron: 2...60 Calcium: 3...100 Zinc: 1...70 Phosphorus: 1...60	0,337 X 0,332 X 1,6799 X ^{0,6} 1,6814 X ^{0,55} 0,9376 X ^{0,55} 1,0667 X ^{0,55} 0,6440 X ^{0,65} 0,5082 X ^{0,7} 1,2765 X ^{0,55}

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.124	Süsiniku aromaatindeksi määramine <i>Calculated Carbon Aromaticity Index (CCAI)</i>	ISO 8217 Annex F			10,11		800...930	Figure F.2
B.125	Kõrgemate alkoholide määramine <i>Ethanol as a blending component for petrol – Determination of higher alcohols, methanol and volatile impurities – Gaschromotographic method</i>	EN 15721			17	% m/m	Methanol 0,1...3,0 Higher alcohols 0,1...2,5 Impurities 0,1...2,0	0,3346 X – 0,0063 0,2956 X – 0,0031 - 0,3024 X + 30,2618
B.126	Fosfori, vase ja väävli määramine. <i>Ethanol as a blending component for petrol - Determination of phosphorus, copper and sulfur content – Direct method by inductively coupled plasma optical emission spectrometric (ICP-OES)</i>	EN 15837			17	mg/kg	Phosphorus 0,13...1,90 Copper 0,050...0,300 Sulfur 2,0...15,0	0,181 X + 0,041 0,240 X + 0,014 0,156 X + 0,132
B.127	Mangaani ja raua määramine autokütustes <i>Automotive fuels – Determination of manganese and iron content in unleaded petrol – Inductively coupled plasma optical emission spectrometry (ICP OES) method</i>	EN 16136			3	mg/l	Manganese 0,5...7,5 Iron 1,4...6,0	0,1690 X + 0,1626 0,1581 X + 0,4928
B.128	Väävli määramine madalatel kontsentratsioonidel. <i>Petroleum products – Determination of low concentration of sulfur in automotive fuels – Energy dispersive X-ray fluorescence spectrometric method</i>	EN ISO 13032, ISO 13032			3, 6	mg/kg	8...50	0,016 X + 3,70
B.129	Mangaani määramine aatomabsorptsioonil <i>Automotive fuels – Determination of manga- nese content in unleaded petrol – Flame atomic absorption spectrometric method (FAAS)</i>	EN 16135			3	mg/l	2...8	0,13 X + 0,75

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.130	Anorgaanilise kloriidi määramine <i>Ethanol as a blending component for petrol - Determination of inorganic chloride and sulfate content – Ion chromatographic method</i>	EN 15492			17	mg/kg	Inorganic chloride 1,0...30,0 Sulfate 0,5...1,0 1,0...20,0	0,075 X + 0,500 - 0,207 X + 0,153
B.131	Joodarvu määramine autokütustes <i>Automotive fuels – Determination of iodine value in fatty acid methyl ester (FAME) – Calculation method from gas chromatographic data</i>	EN 16300			13,14	gJ ₂ /100g	> 1,0	0,053X + 1,1216
B.132	Süsivesiniku tüüpide ja oksügenaatide määramine <i>Liquid petroleum products – Determination of hydrocarbon types and oxygenates in automotive – motor gasoline – Multidimensional gas chromatography method</i>	EN ISO 22854			3,4	% v/v	Procedure A: Saturates < 90 Aromatics < 50 Olefins 1,5...30 (< 50) Benzene < 2 Benzene ≥ 0,8 Benzene < 0,8 Oxygenats 0,8...15 Total oxygen 1,5...3,7 Procedure B : Ethanol 50...85 Ethers 0,5...1,6 C4 –C5 alcohols 1,4...2,5	1,6 0,0450 X + 0,1384 0,1176 X + 0,5118 - 0,0777 X – 0,0250 0,04 0,0251 X + 0,3515 0,38 % (m/m)
	<i>Standard Test Method for Hydrocarbon Types, Oxygenated Compounds, and Benzene in Spark Ignition Engine Fuels by Gas Chromatography</i>		D6839			% v/v	Part A : Aromatics 20...45 (< 50) Olefins 0...28 (< 50) Saturates 25...80 Total oxygen 0,25 ... 1,8 (1,5...3,7) Benzene 0,5...1,6 (< 2) Ether < 22 Oxygenats 0,8...15 MTBE 0...10 Ethanol 0,5...4 ETBE 0...10 TAME 0...4,5	0,036 (10 + X) 0,72 X ^{0,46} 1,6 0,10 % m/m 0,053 X ^{1,6} - - 0,37 0,37 0,67 0,71

								Iso-Propanol 0...10 1,35 Iso-Butanol 0...10,1 0,65 Tert-Butanol 0...6,7 0,48 Part B : Ethanol 50...85 4,85 Ethers 0,5...1,6 0,33 C4 –C5 alcohols 1,4...2,5 0,6963 X + 0,0731
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nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.133	Heptaanis mittelahustuvate asfalteenide määramine. <i>Determination of Asphaltenes (Heptane Insolubles) in Crude Petroleum and Petroleum Products</i>		D6560	IP 143	7,8,9,11, 12	% m/m	0,5 – 30	0,2 · A (A – asphaltenes)
B.134	Kasutatud määrdeõlides metalliliste lisandite määramine <i>Determination of Additive Elements, Wear Metals, and Contaminants in Used Lubricating Oils and Determination of Selected Elements in Base Oils by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)</i>		D5185		9	mg/kg (µg/g)	Aluminum 6...40 Barium 0,5 ... 4 Boron 4...30 Calcium 40...9000 Chromium 1... 40 Copper 2... 160 Iron 2... 140 Lead 10... 160 Magnesium 5... 1700 Manganese 5... 700 Molybdenum 5... 200 Nickel 5... 40 Phosphorus 10... 1000 Potassium 40... 1200 Silicon 8... 50 Silver 0,5... 50 Sodium 7... 70 Sulfur 900... 6000 Tin 10... 40 Titanium 5... 40 Vanadium 1... 50 Zinc 60... 1600	3,8 · X ^{0,26} 0,59 · X ^{0,92} 13,0 · X ^{0,01} 0,015 · X ^{1,3} 0,81 · X ^{0,61} 0,24 · X 0,52 · X ^{0,60} 3,0 · X ^{0,36} 0,72 · X ^{0,77} 0,13 · X ^{1,2} 0,64 · X ^{0,71} 1,5 · X ^{0,50} 4,3 · X ^{0,50} 6,6 · X ^{0,29} 2,9 · X ^{0,39} 0,35 · X 1,1 · X ^{0,71} 1,2 · X ^{0,75} 2,1 · X ^{0,62} 2,5 · X ^{0,47} 0,28 · X ^{1,1} 0,083 · X ^{1,1}
B.135	Külma filtri ummistuspunkti määramine <i>Determination of cold filter plugging point - Linear cooling bath method</i>	EN 16329			5,6,13,14	°C	- 47 to + 11	1,7 – 0,052 · X
B.136	Koonuse penetratsioon määrdeainetesse <i>Methods for Cone Penetration of Lubricating Grease</i>	ISO 2137	D217	IP 50	9	units	Unworked 85 to 475 Worked 130 to 475 Prolonged worked 130 - 475 Block under 85	19 20 27 11

nr. No	Katse Test	EN, ISO, EN ISO	ASTM	Muud Other	Objekt* Object*	Mõõtühik Unit	Mõõteulatus Range	Korratavus Reproducibility (R)
B.137	Diislikütuse mangaani ja rauasisalduse määramine <i>Determination of manganese and iron content in diesel - Inductively coupled plasma optical emission spectrometry (ICP OES) method</i>	EN 16576			6	mg/l	0,5...7,0	For manganese $0,1147 \cdot X + 0,0944$ For iron: $0,1382 \cdot X + 0,0851$
B.138	Toornaftas soolade määramine <i>Method for salts in crude oil (electrometric method)</i>		D3230	IP 265	7,8,11,12	mg/kg	0...500	$2,7803 \cdot X^{0,75}$
B.139	Värvuse määramine Lovibondi meetodil <i>Determination of colour - Lovibond tintometer method</i>			IP 17 (manual method) IP 569 (automatic method)	3,4,5,6,9, 10,11,12, 13,14,15	Lovibond RYBN color	Red, Yellow: 0,1–0,9; 1-9; 10-70 Blue:0,1–0,9;1-9;10-40 Neutral Tint : 0,1-0,9; 1; 2; 3 Red : 0,1...70 Yellow : 0,1...70 Blue: 0,1 ...40 Neutral : 0,1... 3	20...40 % 0,34 0,106 (X + 1) 0,24 0,16
B.140	Naftaproduktide aururõhk <i>Vapor Pressure of Petroleum Products (Reid Method) Procedure A</i>		D323		1,2,3,4,8, 11,12	kPa (psi)	Procedure A Gasoline 35 ...100 (5...15) Other 0...35 (0...5) Other 110...180 (16...26)	5,2 kPa (0,75 psi) 2,4 kPa (0,35 psi) 2,8 kPa (0,4 psi)
B.141	Alumiiniumi, räni, vanaadiumi, nikli, raua, kaltsiumi, tsingi ja naatriumi määramine AAS-iga <i>Determination of aluminium, silicon, vanadium, nickel, iron, calcium, zinc and sodium in residual fuel oil by ashing, fusion and atomic absorption spectrometry</i>			IP470	8	mg/kg	Aluminum 5...150 Silicon 10...250 Vanadium 1...400 Nickel 1...100 Iron 2...60 Sodium 1...100 Calcium 3...100 Zinc 1...70	$0,7890 \cdot X^{0,67}$ $1,388 \cdot X^{0,67}$ $3,26 \cdot X^{0,5}$ $2,333 \cdot X^{0,55}$ $1,887 \cdot X^{0,6}$ $1,303 \cdot X^{0,6}$ $0,125 \cdot (X + 28)$ $0,580 \cdot X^{0,75}$
B.142	Etanooli ja vee lahuse tiheduse mõõtmine <i>Determination of density of ethanol-water solution</i>			(EC) 2870/ 2000	18	g/cm ³	0,780...1,100	0,0002

Objekt */ Object *:

1. Spetsiaalsed bensiinid, lahustibensiin (lakibensiin) / *Special spirits, solvent (white spirit)*
2. Toorbensiin / *Naphtha*
3. Bensiin / *Gasoline*
4. Lennukibensiin / *Avgas*
5. Petroleum / *Kerosene, Jet fuels*
6. Diislikütus / *Gasoil*
7. Kerge kütteõli / *Heating Oil*
8. Raske kütteõli / *Fuel Oil*
9. Määrdeõli / *Lubricating oil*
10. Põlevkiviõli / *Shale oil*
11. Toornafta / *Crude Oil*
12. Vaakumgaasiõli / *Vacuum gas oil*
13. Rasvhapete metüülestrid (FAME) diiselmootorite jaoks / *Fatty acid methyl esters (FAME) diesel engines*
14. Rasvhapete metüülestrid (FAME) kütteõlina / *Fatty acid methyl esters (FAME) fuel oil*
15. Loomsed ja taimsed rasvad ja õlid / *Animal and vegetable fats and oils*
16. Tööstuslikud vedelad kemikaalid / *Liquid hydrocarbons*
17. Kütteetanool / *Fuel Ethanol*
18. Etanooli-vee lahus / *Ethanol-water solution*

2. Katsetamist teostav struktuuriüksus: Analiit AA OÜ katselabor

Part of legal entity that provides testing:

Aadressid: Pähklimäe tn. 8, Maardu, 74114

Legal address of company:

3. Labor on akrediteeritud standardi EVS-EN ISO/IEC 17025:2006 nõuete suhtes

Laboratory is accredited against the requirements of standard EVS-EN ISO/IEC 17025:2006

Kristiina Saarniit
EAK juhataja
Director of EAK
Tallinnas, 30.12.2015

Kalju Anni
Peaassessor
Lead Assessor