

moeve

Moeve **innovation**
laboratories catalog





The **Moeve innovation laboratories** consist of five laboratories, located in Palos de la Frontera (Huelva), San Roque (Cádiz), Tenerife and Alcalá de Henares (Madrid).

These laboratories are essential for the energy transition we are undergoing, not only allowing us to ensure the quality of our new products and meet our customer requirements, complying with the most demanding specifications and standards, but also playing a crucial role in the use of new raw materials and products of biological origin.

We analyze products ranging from automotive, marine, domestic and aviation fuels, to biofuels, circular-origin raw materials, biodegradable detergents or asphalts. This means a large range of more than 800 different products. In this way, we provide our clients with the necessary tools to move together towards a sustainable model, the main objective of Moeve's **Positive motion** strategy.

Alcohols

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
1,4-Dioxane in AES and SLES		ISO 17280						X
Acid number in FAL and AES		ISO 660						X
Alcalinity in AS	ASTM D1570	ISO 4314						X
Chlorides in SLES		ISO 457		In house by potentiometric titration				X
Distribution of molecular weights in FAL and AES				In house by GC-FID				X
Etilene oxide in AES, AS and SLES				In house by GC-MS				X
Etoxilation profile in SLES				In house by HPLC-CAD				X
FTIR spectrum				In house by FTIR-ATR				X
Hazen colour		ISO 6271						X
Hydroxyl number in FAL and SLES	ASTM E1899			In house				X
Insulphated matter in AES, AS and SLES				In house				X
Iodine number in FAL, AS and SLES		ISO 3961						X
Klett colour in SLES				Petresa LC 802.4				X
PEG content in AES and SLES				In house				X
Peroxide number in SLES		UNE-EN ISO 27107		In house by potentiometric titration				X
Saponification index in FAL		ISO 3657		AOCS TI 1a-64				X

Bitumen

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Density @ 15°C	ASTM D8188	ISO 3838			X	X		
Density @ 25°C	ASTM D70	ISO 3838				X	X	
Distillation SIMDIST HT	ASTM D7169	EN 15199						X
Ductility @ 25°C		EN 13589				X	X	
Flash point Cleveland	ASTM D92	ISO 22592			X	X	X	X
Heat and air effects on asphaltic materials TFOT	ASTM D1754	EN 12607-2				X	X	
Heat loss RTFOT	ASTM D2872	EN 12607-1				X	X	
Penetration @ 25°C	ASTM D5	EN 1426			X	X	X	
Penetration index		EN 12591				X	X	
Point of fragility Fraass		EN 12593				X	X	
Retained penetration	ASTM D5	EN 1426				X	X	
Softening point RTFO	ASTM D36	EN 1427				X	X	
Solubility	ASTM D2042	EN 12592				X	X	
Specific density 25/25°C		ISO 3838				X	X	
Viscosity	ASTM D2170					X		
Viscosity Brookfield	ASTM D2983	EN 13302				X		

Catalysts

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acidity				In house				X
Al ₂ O ₃ in FCC catalysts				In house				X
Calcium				In house by ICP-OES				X
Carbon				UOP 703-71				X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]				In house				X
Cerium				In house by WDXRF				X
Chlorine				In house by FRX				X
CO volume				In house				X
Cobalt in Pd on C catalysts				In house by ICP-OES				X
Copper				In house by ICP-OES				X
Cristallinity ZSM-5				In house by DRX				X
Crush resistance (0,2-1,5 MPa)				In house				X
DRX long low angle				In house by DRX				X
DRX low angle				In house by DRX				X
FTIR spectrum				In house by FTIR-ATR				X
Iron				In house by ICP-OES				X
Magnesium				In house by ICP-OES				X
Manganese in Pd on C catalysts				In house by ICP-OES				X
Mass loss				In house by thermogravimetric analysis				X
Molibdene in Pd on C catalysts				In house by ICP-OES				X
Nickel				In house by ICP-OES / WDXRF				X
P ₂ O ₅ in FCC catalysts				In house				X
Paladium in Pd on C catalysts				In house by ICP-OES				X
Paladium in Pd on C catalysts				In house by GFAA				X
Programmed thermal decomposition				In house by desorption				X
Rare earths in FCC catalysts				In house				X
Reduction temperature				In house by redox reaction				X
Semiquantitative analysis				In house by FRX				X

Catalysts

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
SiO ₂ in FCC catalysts				In house				X
Sodium				In house by ICP-OES				X
Sulphur content				In house by WDXRF				X
Titanium in Pd on C catalysts				In house by ICP-OES				X
Vanadium				In house by ICP-OES			X	X
Zeolite faujasite unit cell	ASTM D3942							X
Zinc in Pd on C catalysts				In house by ICP-OES				X

Chemical products

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acid wash colour	ASTM D848				X	X		
Acidity	ASTM D847 / ASTM D1613				X	X		
Appearance	ASTM D4176			Visual	X	X		X
Aromatics and non-aromatics	ASTM D7504				X	X		
Benzene	ASTM D7504 / ASTM D5713				X	X		
Bromine index	ASTM D2710 / ASTM D5776				X	X		X
C8+ aromatics	ASTM D5134				X	X		X
Carbonyl number	ASTM E411			UOP 624				X
Chlorides				UOP 588/ UOP 779				X
Citric and oxalic acids in phenol				In house by HPLC-RID				X
Composition	ASTM D7504			In house by GC	X	X		
Copper corrosion	ASTM D849 / ASTM D130	EN 2160			X	X		X
Density	ASTM D4052 / ASTM D1078	ISO 12185	IP 365		X	X		X
Distillation	ASTM D850 / ASTM D1078				X	X	X	X
Doctor test	ASTM D235 / ASTM D4952				X	X	X	
Iron				In house by Ion Chromatography (IC)				X
m-Xylene	ASTM D7504				X	X		
Non-aromatics	ASTM D7504				X	X		
Non-volatile matter	ASTM D1353				X	X		
o-Xylene	ASTM D7504				X	X		
p-Xylene	ASTM D7504				X	X		
Permanganate time	ASTM D1363					X		
Polymer content in AMS	ASTM D7977			CQPM MO-0132 / In house				X
Pt/Co colour	ASTM D6045 / ASTM D1209 / ASTM D5386				X	X	X	X
Purity of sodium metaborate				In house by volumetric titration			X	
Saybolt colour	ASTM D6045				X	X	X	X
Sodium				In house by Ion Chromatography (IC)				X
Solidification point	ASTM D6875			BASF 3230		X		

Chemical products

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Sulphur compounds	ASTM D853			In house	X	X		X
Sulphur content	ASTM D5453	ISO 20846			X	X	X	X
Toluene	ASTM D7504				X	X		
Total chlorine	ASTM D7359 / ASTM D7536			In house by FRX	X	X		
Total nitrogen	ASTM D4629				X	X		X
Water				Visual	X	X	X	
Water by Karl Fischer	ASTM D6304 / ASTM D4928 / ASTM E203	ISO 12937			X	X	X	X

Coolants

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Alkaline reserve	ASTM D1121							X
Color				Visual				X
Electric conductivity				In house by conductimetry				X
Foaming tendency	ASTM D1881							X
Freezing point	ASTM D1177							X
pH	ASTM D1287							X
Water by Karl Fischer	ASTM D1123							X

Crude oil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distillation				In house by DHA+SIMDIST HT	X	X		X
Mercury				UOP 398		X		
Organic chlorides				In house by extraction		X		
Phosphorus				In house by ICP-OES				X
Refraction index	ASTM D1218				X	X		X
Salts	ASTM D3230				X	X	X	
Sediments	ASTM D473				X	X	X	
Selenium				In house by ICP-OES				X
Stability and separability number	ASTM D7061							X
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Total acid number	ASTM D664				X	X	X	X
Total chlorine	ASTM D7356 / ASTM D7359			In house by FRX	X	X		
Total nitrogen	ASTM D4629				X	X		X
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X
Water and sediments	ASTM D4007			In house	X	X	X	X
Water by distillation	ASTM D95				X	X	X	X
Water by Karl Fischer	ASTM D6304	ISO 12937			X	X	X	X

FAME

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acid number	ASTM D664	EN 14104			X	X	X	X
ASTM colour	ASTM D1500 / ASTM D6045				X	X	X	X
Calcium + Magnesium		EN 14538		In house by ICP-OES	X	X		X
Cetane number	ASTM D7668				X	X		
Cloud point	ASTM D5772 / ASTM D2500	EN 23015			X	X	X	X
Cold filter plugging point	ASTM D6371	EN 116	IP 309		X	X	X	X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Glycerides		EN 14105			X			X
Iodine value		EN 16300			X			X
Methanol		EN 14110			X			
Methyl ester of linolenic acid		EN 14103			X			X
Methyl esters		EN 14103			X			X
Oxidation stability		EN 14112 / EN 15751			X	X	X	X
Phosphorus		EN 14107		In house by ICP-OES	X	X		X
Sodium + Potassium		EN 14538		In house by ICP-OES	X	X		X
Sulphated ashes	ASTM D874				X			X
Sulphur content	ASTM D5453	ISO 20846		In house by FRX	X	X	X	X
Total chlorine				In house by potentiometric titration / FRX	X	X		X
Total contamination		EN 12662			X	X	X	X
Viscosity @ 40°C	ASTM D445	ISO 3104 / EN 16896			X	X	X	X
Water by Karl Fischer	ASTM D6304	ISO 12937			X	X	X	X

Fuel oil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Accelerated ageing		ISO 10307-2			X	X	X	
Aluminium + Silicon			IP 501		X	X	X	X
Aluminium + Silicon (by element)			IP 501		X	X	X	X
Aromaticity index CCAI		ISO 8217			X	X	X	
Aromatics content				In house by HPLC	X		X	
Ashes	ASTM D482	ISO 6245			X	X	X	X
Asphaltenes			IP 143		X	X	X	X
Cadmium				In house by ICP-OES				X
Calcium ULO's			IP 501	In house by ICP-OES	X	X	X	
Carbon residue micro method	ASTM D4530	ISO 10370			X	X	X	X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Chromium				In house by ICP-OES				X
Colour				Visual	X	X	X	X
Compatibility (spot test)	ASTM D4740				X	X	X	X
Copper				In house by ICP-OES				X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
FAME content					X		X	
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Heat of combustion	ASTM D240	ISO 8217			X		X	X
Hydrogen sulphide			IP 570		X	X	X	
Nickel				In house by ICP-OES	X	X	X	X
Phosphorus ULO's			IP 501		X	X	X	
Sodium			IP 501		X	X	X	X
Stability (spot test)	ASTM D4740				X	X	X	X
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Tin				In house by ICP-OES				X
Total accelerated sediment		ISO 10307-2			X	X	X	
Total acid number	ASTM D664				X	X	X	X
Total existent sediment		ISO 10307-1			X	X	X	

Fuel oil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Total nitrogen	ASTM D4629				X	X		X
Total potential sediment		ISO 10307-2			X	X	X	
Total sediment compatibility		ISO 10307-1			X	X	X	
Upper pour point	ASTM D5950	ISO 3016			X	X	X	X
Vanadium			IP 501		X	X	X	X
Viscosity @ 50°C	ASTM D445	ISO 3104			X	X	X	X
Water and sediments	ASTM D1796				X	X	X	X
Water by distillation	ASTM D95				X	X	X	X
Zinc ULO's			IP 501	In house by ICP-OES	X	X	X	

Gas oil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Appearance	ASTM D4176			Visual	X	X	X	X
Aromatic polycyclic hydrocarbons	ASTM D6591/ASTM D8368	EN 12916			X	X	X	X
Ashes	ASTM D482	ISO 6245			X	X	X	X
ASTM colour	ASTM D1500 / ASTM D6045				X	X	X	X
Biogenic carbon content		DIN 51637				X		
Bromine number	ASTM D1159 / ASTM D5776		UOP 304		X	X		X
Carbon residue micro method	ASTM D4530	ISO 10370			X	X	X	X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Cetane index	ASTM D4737	ISO 4264			X	X	X	X
Cetane index	ASTM D7668				X	X	X	
Cloud point	ASTM D5772 / ASTM D2500	EN 23015			X	X	X	X
Cold filter plugging point	ASTM D6371	EN 116	IP 309		X	X	X	X
Copper				In house by ICP-OES				X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distillation	ASTM D86	ISO 3405			X	X	X	X
Distillation SIMDIST	ASTM D2887	ISO 3924	IP 406		X	X	X	X
Distribution of normal paraffins, non-normal paraffins and total individual paraffins				In house by GC-FID	X			X
FAME content		EN 14078			X	X	X	X
FBT (Filtrability)			IP 387		X	X	X	
FBT (Filtrability) + Cold soak			IP 387 + IP PM-EA/13				X	
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Hydrogen content				In house by NMR				X
Intracellular ATP due to microbiological contamination	ASTM D7687					X	X	X
Iron				In house by ICP-OES				X
Lubricity	ASTM D6079	ISO 12156			X	X	X	X
Oxidation stability	ASTM D2274	ISO 12205			X	X	X	

Gas oil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Oxidation stability		EN 15751			X	X	X	X
Particle content		EN 12662			X	X	X	X
Sulphur content	ASTM D5453	ISO 20846	ISO 20840		X	X	X	X
Sulphur species				In house by GC-AED				X
Upper pour point	ASTM D5950	ISO 3016			X	X	X	X
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X
Water by Karl Fischer	ASTM D6304	ISO 12937			X	X	X	X
Zinc				In house by ICP-OES				X

Gasoline

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Appearance	ASTM D4176			Visual	X	X	X	X
Biogenic carbon content				DIN 51637		X		
Bromine number	ASTM D1159 / ASTM D5776			UOP 304	X	X		X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Colour				Visual	X	X	X	X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distillation	ASTM D86	ISO 3405			X	X	X	X
Hidrocarbon types		ISO 22854			X	X	X	
Induction period	ASTM D525	EN 7536			X	X	X	X
Lead	ASTM D3237	EN 237	IP 224	UOP 350	X	X	X	X
Manganese		EN 16136		In house by ICP-OES	X	X	X	X
Octane number (MON)	ASTM D2700	ISO 5163 / EN 25163	IP 236		X	X	X	
Oxygenated compounds	ASTM D8071	ISO 22854 / UNE EN 18015			X	X	X	
Phosphorus				In house by ICP-OES	X			X
Potassium				In house by ICP-OES				X
Potential gums	ASTM D873						X	
Relative vapour pressure	ASTM D5191	ISO 13016			X	X	X	X
Research octane number (RON)	ASTM D2699	ISO 5164 / EN 25164	IP 237		X	X	X	
Sulphur content	ASTM D5453	ISO 20846			X	X	X	X
Total/washed gums	ASTM D381	ISO 6246	IP 540		X	X	X	

Heavy fractions

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Aromatics			IP 548					X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Copper in VGO				In house by ICP-OES				X
Distillation SIMDIST HT	ASTM D7169	EN 15199			X	X	X	X
HPNAs in VGO				In house by HPLC-DAD				X
Iron in VGO				In house by ICP-OES				X
Nickel in VGO				In house by ICP-OES				X
Sodium in VGO				In house by ICP-OES				X
Vanadium in VGO				In house by ICP-OES				X

HEFA

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Biogenic carbon content		DIN 51637				X		
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291							X
Density @ 15°C	ASTM D4052				X	X	X	X
Distillation	ASTM D86				X	X	X	X
Distillation SIMDIST	ASTM D2887				X	X	X	X
Estimated hydrogen content	ASTM D3343						X	
Existent gums			IP 540		X	X	X	
FAME content			IP 585		X	X	X	
Flash point Abel	ASTM D56	ISO13736			X	X	X	
Flash point Pensky Martens	ASTM D93	ISO 2719			X		X	
Free water				In house by shell capsule			X	
Freezing point	ASTM D2386				X		X	
Freezing point	ASTM D7153			ASTM D5972	X	X	X	
Hydrocarbon composition (cycloparaffins, aromatics, paraffins)	ASTM D2425							X
Measurement of fuel system icing inhibitors	ASTM D5006				X			
Metals (Al, Ca, Co, Cr, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Pt, Sn, Sr, Ti, V, Zn)				In house by ICP-OES				X
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Thermal oxidation stability (JFTOT) 325°C	ASTM D3241				X	X	X	
Total acidity	ASTM D3242		IP 354		X	X	X	
Total aromatics					X		X	
Viscosity @ -20°C					X	X	X	
Viscosity @ -40°C					X	X	X	
Water	ASTM D6304				X	X		X
Water separation index MSEP					X		X	
Water tolerance	ASTM D1094				X		X	

HVO

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Appearance				Visual	X	X	X	X
Aromatic polycyclic hydrocarbons		EN 12916			X	X	X	X
Ashes	ASTM D482	ISO 6245			X	X	X	X
Biogenic carbon content		DIN 51637				X		
Carbon residue micro method	ASTM D4530	ISO 10370			X	X	X	X
Cetane number	ASTM D7668			ASTM D5165	X	X	X	
Cloud point	ASTM D5772	EN 23015		ASTM D2500	X	X	X	X
Cold filter plugging point	ASTM D6371	EN 116	IP 309		X	X	X	X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185			X	X	X	X
Distillation	ASTM D86	EN ISO 3405			X	X	X	X
Distillation SIMDIST	ASTM D2887	ISO 3924	IP 406		X		X	X
FAME content		EN 14078			X	X	X	X
Flash point correlation				In house by GC				X
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
FTIR spectrum				In house by FTIR-ATR				X
Intracellular ATP due to microbiological contamination	ASTM D7687					X	X	X
Lubricity	ASTM D6079	ISO 12156			X	X	X	X
Manganese				In house by ICP-OES	X	X	X	X
n and iso-Paraffins				In house by GC-FID	X			X
Oxidation stability	ASTM D2274	EN ISO 12205			X	X	X	
Oxidation stability		EN 15751			X	X	X	X
Particle content		EN 12662			X	X	X	X
Sulphur content	ASTM D5453	ISO 20846			X	X	X	X
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X
Water by Karl Fischer	ASTM D6304	ISO 12937			X	X	X	X

Jet

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Appearance	ASTM D4176			Visual	X	X	X	X
Biogenic carbon content		DIN 51637				X		
Bromine number	ASTM D1159 ASTM D5776			UOP 304	X	X		X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Cetane index	ASTM D976				X	X	X	
Contamination by particles	ASTM D5452				X	X	X	
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distillation	ASTM D86	ISO 3405			X	X	X	X
Distillation SIMDIST	ASTM D2887	ISO 3924	IP 406		X	X	X	X
Doctor test	ASTM D4952				X	X	X	
Electric conductivity	ASTM D2624				X	X	X	
Estimation of hydrogen content	ASTM D3343				X	X	X	
Existen gums	ASTM D381	ISO 6246	IP 540		X	X	X	
FAME content			IP 585	IP 599	X	X	X	X
Filtration time				MIL-DTL-83133	X	X	X	
Flash point Abel		ISO 13736	IP 170		X	X	X	
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Free water				In house by shell capsule		X	X	
Freezing point	ASTM D2386				X	X	X	
Freezing point	ASTM D5972				X	X	X	X
Hydrogen content	ASTM D3701							
Measurement of freeze-inhibiting additives	ASTM D5006				X	X	X	
Mercaptan sulphur	ASTM D3227				X	X	X	
Naphtalenes	ASTM D1840				X	X	X	
Neat heat of combustion	ASTM D3338				X	X	X	
Particle count			IP 565		X	X	X	
Saybolt colour	ASTM D6045				X	X	X	X
Smoke Point	ASTM D1322				X	X	X	

Jet

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Thermal oxidation stability (JFTOT)	ASTM D3241				X	X	X	
Total acidity	ASTM D3242				X	X	X	
Total aromatics	ASTM D6379/ASTM D8267		IP 391	ASTM D1319	X	X	X	
Viscosity @ -20°C	ASTM D7945				X	X	X	
Viscosity @ -20°C	ASTM D445	ISO 3104				X	X	
Visual inspection procedures for aviation fuels	ASTM D6986				X		X	
Water separability MSEP	ASTM D3948 ASTM D7224			ASTM D 8073	X	X	X	
Water tolerance	ASTM D1094				X	X	X	

LAB

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acid wash colour				In house	X			
Appearance				Visual	X	X		X
Bromine index	ASTM D2710 / ASTM D5776				X	X		X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X		X
Density @ 20°C	ASTM D4052	ISO 12185	IP 365		X			X
LAB distribution				UOP 673	X			
LAB distribution				In house by GCxGC (GC2)				X
Saybolt colour	ASTM D6045				X	X		X
Tetralines		EN 13405			X			
Water by Karl Fischer				UOP 481	X	X		

LAS

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acidity index				In house by titration	X			X
Active matter in LAS				In house	X			
Color Klett (5% MA)				CQPM LC 802.4	X			X
Free oil in LAS				CQPM LC 802.5	X			
Free sulphuric acid in LAS				CQPM LC 802.2	X			
Iron				In house by ICP-OES				X
Mean molecular weight				UOP 673	X			
Total compounds in LAS				CQPM LC 802.7	X			
Transmittance				PG60039259/LC 802	X			
Water by Karl Fischer	ASTM D6304	ISO 12937			X			

LPG

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Ammonium				In house by colorimetric tube	X	X		
Arsine				In house by colorimetric tube	X	X		
Basic nitrogen				In house by colorimetric tube	X	X		
Carbon oxides				In house by GC	X			
Carbon sulphide				In house by GC	X	X		
Composition (propane and butane)	ASTM D2712/2163	EN 27941			X	X	X	
Copper corrosion	ASTM D1838				X	X	X	
Density @ 15°C	ASTM D2598 / ASTM D3588				X	X	X	
Doctor LPG	ASTM D4952				X	X	X	
Heat value	ASTM D3588				X	X	X	
Hydrogen				In house by GC	X			
Hydrogen sulphide	ASTM D2420			In house by colorimetric tube	X	X		
Methanol and ketones				In house by GC	X	X		
Moisture	ASTM D2713				X	X	X	
Moisture	ASTM D1142			In house by shaw dew point	X	X		
Octane number (MON)	ASTM D2598				X	X	X	
Odour LPG					X	X	X	
Oil number	ASTM D2158				X	X		
Oxygen				In house by GC	X			
Propylene composition	ASTM D2712/2163			In house by GC	X	X		
R-number	ASTM D2158				X	X		
Residues	ASTM D2158				X	X		
Sulphur content	ASTM D6667				X	X	X	
Vapour pressure	ASTM D2598				X	X	X	
Volatility	ASTM D1837				X	X	X	
Water by Karl Fischer	ASTM D7995				X	X		

MGO/GOC

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Aniline point	ASTM D611				X	X		X
Appearance	ASTM D4176			Visual	X	X	X	X
Ashes	ASTM D482	ISO 6245			X	X	X	X
ASTM colour	ASTM D1500 / ASTM D6045				X	X	X	X
Carbon residue micro method	ASTM D4530	ISO 10370			X	X	X	X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Cetane index	ASTM D4737	ISO 4264			X	X	X	X
Cloud point	ASTM D2500 / ASTM D5772	EN 23015			X	X	x	X
Cold filter plugging point	ASTM D6371	EN 116	IP 309		X	X	X	X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12186	IP 365		X	X	X	X
Distillation	ASTM D86	ISO 3405			X	X	X	X
FAME content		EN 14078			X	X	X	X
FBT (Filtrabilidad)			IP 387		X	X	X	X
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Hydrogen sulphide			IP 570		X	X	X	
Intracellular ATP due to microbiological contamination	ASTM D7687					X	X	X
Lubricity	ASTM D6079	ISO 12156			X	X	X	X
Oxidation stability	ASTM D2274	ISO 12205			X	X	X	
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Total acid number	ASTM D664				X	X	X	X
Upper pour point	ASTM D5950	ISO 3016			X	X	X	X
Upper pour point Phase	ASTM D5949						X	
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X

Naphta

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Aromatics		ISO 22854		In house by GC	X	X	X	
Arsenic				In house by ICP-OES-AA		X		X
Biogenic carbon content		DIN 51637				X		
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Hydrogen sulphide				UOP 163	X	X	X	
Naphtalenes				In house by GC	X			
Naphtalenes + Aromatics				In house by GC	X			
Oxygenates: MTBE + ETBE				In house by GC	X	X		
Phosphorus				In house by ICP-OES	X			X
Silicon				In house by ICP-OES				X
Total chlorine	ASTM D7536 / ASTM D7359				X	X		
Total nitrogen	ASTM D4629				X	X		X

Paraffins

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Bromine index	ASTM D2710 / ASTM D5776				X	X		X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distribution				CQPM LC 402	X			
Distribution				VUV		X		
Distribution of normal, non-normal and total individual paraffins				UOP 411	X			
Oil content				In house by RMN				X
Saybolt colour	ASTM D6045				X	X	X	X

Pyoil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Aluminum				In house by ICP-OES	X		X	X
Appearance				Visual	X	X	X	X
Aromatic polycyclic hydrocarbons		EN 12916			X	X	X	X
Arsenic				In house by ICP-OES		X	X	X
Barium				In house by ICP-OES			X	X
Basic nitrogen				UOP 269		X		X
Bromine				In house by EDX				X
Bromine number	ASTM D1159				X	X		X
Calcium				In house by ICP-OES			X	X
Calorific Value	ASTM D240							X
Carbon residue micro method		ISO 10370			X	X	X	X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291					X		X
Chlorine				Microcoulometry				X
Chlorine				In house by EDX	X	X		X
Cobalt				In house by ICP-OES			X	X
Colour				Visual	X		X	X
Copper				In house by ICP-OES		X	X	X
Density @ 15°C	ASTM D4052	ISO 12185			X	X	X	X
DHA	ASTM D6733							X
Distillation SIMDIST HT	ASTM D7169	EN 15199			X	X	X	X
Flash point correlation				In house by GC				X
FTIR spectrum				In house by FTIR-ATR				X
Iron				In house by ICP-OES		X	X	X
Lead				In house by ICP-OES		X	X	X
Magnesium				In house by ICP-OES			X	X
Manganese				In house by ICP-OES		X	X	X
Mercury				In house by EDX			X	X
Molybdenum				In house by ICP-OES			X	X
Nickel				In house by ICP-OES	X	X	X	X

Pyoil

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Oxidation stability				In house basado en ISO 7536				X
Phosphorus				In house by ICP-OES		X	X	X
Potassium				In house by ICP-OES			X	X
Refractive index	ASTM D1218				X			X
Relative vapor pressure	ASTM D6378							X
Semiquantitative analysis				In house by EDX				X
Silicon				In house by ICP-OES	X		X	X
Sodium				In house by ICP-OES	X	X	X	X
Sulphur content	ASTM D5453	ISO 20846		In house by EDX	X	X	X	X
Tin				In house by EDX				X
Total acid number	ASTM D664				X	X	X	X
Total nitrogen	ASTM D4629				X	X		X
Upper pour point	ASTM D5950	ISO 3016			X	X	X	X
Vanadium				In house by ICP-OES	X	X	X	X
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X
Viscosity @ 70°C	ASTM D445	ISO 3104					X	X
Water by Karl Fischer				In house by volumetric titration		X		X
Zinc				In house by ICP-OES			X	X

SAF

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Appearance	ASTM D4176			Visual	X	X	X	X
Biogenic carbon content		DIN 51637				X		
Bromine number	ASTM D1159 / ASTM D5776		UOP 304		X	X		X
Cetane index	ASTM D976				X	X	X	X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distillation	ASTM D86	ISO 3405			X	X	X	X
Distillation SIMDIST	ASTM D2887	ISO 3924	IP 406		X	X	X	X
Doctor test	ASTM D4952				X	X	X	
Electrical conductivity	ASTM D2624				X	X	X	
Existent gum	ASTM D381	ISO 6246	IP 540		X	X	X	
FAME content			IP 585	IP 599/ 583	X	X	X	X
FAME content (Inconvertibles)	ASTM D7797					X	X	
Filtration time				MIL-DTL-83133	X	X	X	
Flash point Abel		ISO 13736	IP 170		X	X	X	
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Free water				In house by shell capsule		X	X	
Freezing point	ASTM D2386				X	X	X	
Freezing point	ASTM D5972				X	X	X	X
Hydrogen content	ASTM D3701				X			
Hydrogen content estimation	ASTM D3343				X	X	X	
Lubricity BOCLE	ASTM D5001					X	X	
Measurement of fuel system icing inhibitor additives	ASTM D5006				X	X	X	
Mercaptan sulphur	ASTM D3227				X	X	X	
Naphthalenes	ASTM D1840				X	X	X	
Net heat of combustion	ASTM D3338				X	X	X	
Particle count			IP 565		X	X	X	
Particulate contamination	ASTM D5452				X	X	X	
Saybolt color	ASTM D6045				X	X	X	X

SAF

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Smoke point	ASTM D1322				X	X	X	
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Thermal oxidation stability (JFTOT)	ASTM D3241				X	X	X	
Total acidity	ASTM D3242				X	X	X	
Total aromatics	ASTM D6379		IP 391		X	X	X	X
Viscosity @ -20°C	ASTM D7945					X	X	
Viscosity @ -40°C	ASTM D7945					X	X	
Visual inspection procedures for aviation fuels	ASTM D6986						X	
Water separation index MSEP	ASTM D3948 / ASTM D7224				X	X	X	
Water tolerance	ASTM D1094				X	X	X	

Solvents

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acid wash colour	ASTM D848				X	X		
Acidity	ASTM D847				X	X		
Acidity as acetic acid	ASTM D1613				X	X		
Appearance	ASTM D4176			Visual	X	X		X
Aromatics	ASTM D7504				X	X		
Aromatics	ASTM D6379		IP 391		X	X	X	X
Aromatics in Molex process n-paraffin products				UOP 495	X	X		X
Benzene	ASTM D7504 / ASTM D2600				X	X		
Benzene and aromatics	ASTM D7504			In house by GC	X	X		
Bromine index	ASTM D2710 / ASTM D5776				X	X		X
Composition	ASTM D5134			In house by GC	X	X		
Copper corrosion	ASTM D130 / ASTM D849	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Distillation	ASTM D86	ISO 3405			X	X	X	X
Distillation	ASTM D1078	D 850			X	X		
Distillation SIMDIST	ASTM D2887	ISO 3924	IP 406		X	X		X
Doctor test	ASTM D4952				X	X	X	
Evaporation residues	ASTM D1353				X	X		
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Naphtalenes				In house by GC	X			
Non-aromatics	ASTM D6563					X		
Non-volatile matter	ASTM D1353				X			
Permanganate time	ASTM D1363					X		
Pt/Co colour	ASTM D1209				X	X		X
Saybolt colour	ASTM D6045				X	X	X	X
Sulphur compounds	ASTM D853				X	X		
Sulphur content	ASTM D5453	ISO 20846			X	X	X	X
Total nitrogen	ASTM D4629				X	X		X
Water by Karl Fischer	ASTM D6304				X	X	X	X

Used lubricants

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acid number (TAN IR)				In house by chemometrics				X
Acid number (TAN) / Strong acid number (SAN)	ASTM D664				X	X	X	X
Air release	ASTM D3427				X			X
Appearance	ASTM D4176			Visual	X	X	X	X
ASTM colour	ASTM D1500 / ASTM D6045				X	X	X	X
Base number (TBN IR)				In house by chemometrics				X
Base number (TBN)	ASTM D2896				X		X	X
Blotter spot test	ASTM D7899							X
Carbon residue micro method	ASTM D4530	ISO 10370			X	X	X	X
Carbon residue Ramsbottom	ASTM D524						X	X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291							X
Chlorides				In house by potentiometric titration				X
Chlorine				In house by FRX	X			X
Cloud point	ASTM D2500				X	X	X	X
Copper corrosion	ASTM D130	EN 2160			X	X	X	X
Density @ 15°C	ASTM D4052	ISO 12185	IP 365		X	X	X	X
Dielectric constant (tan δ)				IEC 60247				X
Dielectric stiffness		EN 60156			X			X
Filtrability				AFNOR NF E 48-690				X
Flash point Cleveland	ASTM D92	ISO 22592			X	X	X	X
Flash point Pensky Martens	ASTM D93	ISO 2719			X	X	X	X
Foaming characteristics	ASTM D892				X			X
FTIR spectrum				In house by FTIR-ATR	X			X
Fuel dilution	ASTM D3525							X
Heptane insolubles			IP 316		X			X
Insoluble colored compounds	ASTM D7843							X
Metals	ASTM D4951				X	X	X	X
Nitration				DIN 51453				X

Used lubricants

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Noack volatility				DIN 51581 / CEC L-40-A-93	X			
Oxidation				DIN 51453				X
Oxidation stability	ASTM D2272							X
Particle content	ASTM D11500							X
pH	ASTM D7614 / ASTM D7946							X
Phenolic antioxidants and aromatic amines				In house by voltamperometry				X
PQ index (ferrous matter)				In house				X
SOOT				DIN 51452				X
SOOT %				DIN 51452				X
Sulphated ashed	ASTM D874			ASTM D482 (Base oil)	X			X
Sulphur content	ASTM D4294	ISO 8754			X	X	X	X
Total nitrogen	ASTM D4629				X	X		X
Upper pour point	ASTM D5950	ISO 3016			X	X	X	X
Viscosity @ 100°C	ASTM D445	ISO 3104			X	X	X	X
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X
Viscosity @ 50°C	ASTM D445	ISO 3104			X	X	X	X
Viscosity @ 70°C	ASTM D445	ISO 3104						X
Viscosity density constant	ASTM D2140							X
Viscosity HTHS @ 150°C	ASTM D5481			SAE J 300	X			X
Viscosity index	ASTM D2270				X			X
Viscosity MRV	ASTM D4684				X			
Water by crackling				In house by plate method				X
Water by Karl Fischer	ASTM D6304	ISO 12937			X	X	X	X
Water separability	ASTM D1401				X			X

Vegetal oil, animal fat

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acid number	ASTM D664	EN 14104			X	X	X	X
ASTM colour	ASTM D6045 / ASTM D1500				X	X	X	X
Bromine number	ASTM D1159				X	X		X
Calcium				In house by ICP-OES / EDX				X
Carbon, hydrogen and nitrogen content (CHN) [% (m/m)]	ASTM D5291							X
Characterization of oleins				In house by por GC-FID				X
Chlorides				In house by potentiometric titration				X
Climatic grade		EN 14214			X			X
Cloud point	ASTM D5772 / ASTM D2500	EN 23015			X	X	X	X
Cold filter plugging point	ASTM D6371	EN 116	IP 309		X			X
Copper corrosion	ASTM D130	EN 2160			X		X	X
Density @ 15°C	ASTM D4052	ISO 12185			X	X	X	X
Distillation SIMDIST HT	ASTM D7169	EN 15199			X		X	X
FAMES distribution		EN 12966						X
Free fatty acid		EN 14104						X
FTIR spectrum				In house by por FTIR-ATR				X
Inorganic chlorine				UOP 779				X
Insoluble impurities content		ISO 663						X
Iodine number		ISO 3961						X
Iron				In house by ICP-OES				X
Magnesium				In house by ICP-OES				X
Methyl ester of linolenic acid in esterified samples		EN 14103			X			X
Methyl ester, fatty acid, glycerol and methanol in oleines		EN 14105		In house	X			X
Moisture and volatile matter content		ISO 662						X
n-Heptane insolubles	ASTM D3279							X
Organic chlorine				In house by / UOP779				X
Oxidation stability		EN 15751			X		X	X
p-Anisidine index				In house				X

Vegetal oil, animal fat

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Peroxide content		ISO 27107						X
Phosphorus				In house by ICP-OES	X			X
Polymerized TAGs		ISO 16931						X
Potassium				In house by ICP-OES				X
Saponification index		ISO 3657		AOCS TI 1a-64				X
Silicon				In house by ICP-OES				X
Sodium				In house by ICP-OES				X
Sulphated ashes	ASTM D874				X			X
Sulphur content	ASTM D5453	ISO 20846			X	X	X	X
Total chlorine	ASTM D7356				X	X		
Total nitrogen	ASTM D4629				X	X		X
Total sediments				In house				X
Viscosity @ 100°C	ASTM D445	ISO 3104			X	X	X	X
Viscosity @ 40°C	ASTM D445	ISO 3104			X	X	X	X
Viscosity @ 70°C	ASTM D445	ISO 3104						X
Water by Karl Fischer	ASTM D6304	ISO 12937			X		X	X

Water

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Acetone (ppm - %)				In house by CG-FID Headspace		X		
Ammonium	ASTM D 1426			In house by selective electrode method		X		
Ammonium				In house by spectrophotometry	X			X
Ammonium nitrogen				In house by spectrophotometry	X	X	X	
Apolar hydrocarbons				I.R. / SM5520	X	X	X	
Benzene (ppm)				In house by GC	X	X		X
BTEX, cumene, AMS (ppb)		UNE-EN ISO 17943				X		
Calcium				In house by ICP		X	X	
Chlorides				In house by spectrophotometry	X	X	X	X
Cobalt				In house by ICP-OES		X	X	
DBO ₅	ASTM D 1252					X	X	
DQO				S.M.5210 B		X	X	
Electric conductivity	ASTM D 1125				X	X	X	
FBAs content				In house by HPLC				X
Fluorides				SM 4500F C	X	X	X	
Free chlorine				In house by spectrophotometry		X	X	
Hydrocarbon index		ISO 9377-2			X	X		
Iron				In house by spectrophotometry /ICP		X	X	
Manganese				In house by ICP-OES		X	X	
Oil and fat				I.R. / SM5520	X	X	X	
pH	ASTM D 1293			SM 4500H+B	X	X	X	
Phenols		UNE EN14402		In house by spectrophotometry	X	X	X	
Phosphates				In house by spectrophotometry	X	X	X	
Phosphates				SM 4500P E	X		X	
Silicon				In house by spectrophotometry / ICP	X	X	X	
Sodium				In house by ICP-OES / ionic chromatography		X		
Sulphurs				In house by spectrophotometry	X	X	X	

Water

Test	Method				Site			
	ASTM	ISO/EN	IP	Other	San Roque	Palos	Tenerife	Alcalá
Suspended solids		UNE-EN 872		SM 2540 D/E	X	X	X	
TA				In house by rodier	X		X	
TAC				In house by rodier	X		X	
TCA				In house by rodier	X		X	
Th				In house by rodier	X		X	
TOC / NPOC		EN 1484		In house by spectrophotometry / SM 5310 B	X	X		
Total chlorine				In house by spectrophotometry/ EPA SW 846 MET. 9077		X	X	
Total nitrogen		EN 20236		In house by spectrophotometry	X	X	X	
Total nitrogen		EN 12260		Método intero by chemiluminiscence	X			
Turbidity		UNE-EN ISO 7027			X	X		

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3. Customized advanced analyses

We use cutting-edge technologies adapted to each need:

- Advanced chromatography – (GCxGC, HPLC-MS, GC-QQQ, GC-PDHID, TD-GC-MS, etc.)
- Mass spectrometry (incl. high resolution)
- Analytical pyrolysis (PY-GC-MS)
- Thermal analysis
- ICP-MS for metals in water
- Ionic chromatography for anions and cations

Main analytical solutions

- **Quality control of green H₂ streams** according to impurities regulations.
- **Characterization of water for electrolyzers** for green H₂ production.
- **Identification of organic compounds in complex samples** using GCxGC- TOF.
- **Characterization of bio-based raw materials** by analytical pyrolysis.

- **Determination of BMP** in substrates for biomethane production.
- **Analysis of oil composition** by HPLC-MS/MS.

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