

polWAX  
Industrial paraffin



# LABORATORIES



# CATALOG

Full  
Synergy



PEOPLE



TECHNOLOGY



ECOLOGY



## SCOPE OF LABORATORIES' ACTIVITY

The core business includes analyses of petroleum products, such as: motor gasolines, diesel fuels, heating oils, engine oils and industrial oils, rapeseed oils, greases, paraffin, bitumen and LPG. **POLWAX S.A.** laboratories in Czechowice-Dziedzice and Jasło employ highly-qualified staff with proven competencies, who improve their skills on an on-going basis and have expertise in analytical methods, thus allowing us to flexibly tailor the tests to clients' individual requirements. Our staff also carry out tests in the area of: environmental protection, water, effluents and air. Moreover, our offer includes tests of the work environment.

**POLWAX S.A.** accredited laboratories have competencies authorising them to carry out tests related to the monitoring of: fuels, effluents and work environment at filling stations.

Furthermore, our Laboratories provide sampling services for:

- Samples from the tanks and fuel dispensers: motor gasolines, diesel fuels, LPG and FAME;
- Rapeseed oil;
- Effluents, underground water (piezometers).



## SELECTED ANALYSIS SERVICES

**POLWAX S.A.** laboratories are equipped with apparatuses and devices produced by renowned manufacturers, suitable for the carrying out of testing in accordance with the applicable Polish and foreign standards (IP, ASTM, GOST).

In addition to a number of standard tests performed for quality control purposes, the laboratories carry out various analyses using innovative equipment, such as:

1. **Inductively coupled plasma optical emission spectrometer ICP Spectro Arcos** - determination of the elemental composition of petroleum products, biofuels, waters.
2. **Wavelength dispersive X-ray fluorescence spectrometer RIGAKU** - non-invasive determination of elemental composition (e.g. of trace amounts of heavy metals).
3. **Viscometers:**
  - CCS - cold-cranking simulator – determination of structural viscosity;
  - Brookfield viscometer – determination of dynamic viscosity;
  - Ravenfield viscometer – determination of dynamic viscosity at high temperatures;
  - Stabinger viscometer – determination of kinematic and dynamic viscosity.
4. **T-02 Four-Ball Testing Machine:** determination of lubricating and anti-wear properties of oils, lubricating greases and lubricating emulsions.
5. **FTIR and UV-VIS spectrometers:** infra-red spectral analyses and ultraviolet analyses.
6. **FZG machine** – testing of lubricating and anti-wear properties of transmission oils and lubricating greases for gear lubrication.
7. **High Performance Liquid Chromatograph (HPLC):** determination of PAH content in diesel fuel.
8. **Gas chromatographs (GC):** analyses of FAME, LPG, petrol, paraffin and effluents.
9. **Gas chromatograph coupled to a mass spectrometer (GC-MS):** identification of the qualitative composition of paraffin.
10. **C2000 Calorimeter:** determination of gross calorific value of solid materials and liquids.
11. **Rancimat:** determination of oxidative stability for rapeseed oils and FAME.
12. **Lovibond Tintometer:** colour measurement.

**In the immediate future the Laboratory plans to implement the following types of testing:**

- Determination of content of polycyclic aromatic hydrocarbons (PAH) - testing methods: DAB 10 and FDA 21 CRF 172.886.
- Determination of trace amounts of heavy metals in paraffin products.
- Determination of oxidative stability (initiating accelerated ageing) for paraffin products.

## CERTIFICATION OF COMPETENCE AND QUALITY OF SERVICE

With its high-tech laboratory facilities **POLWAX S.A.** offers a wide range of research and analysis services in the field of petroleum products and environment testing.

**POLWAX S.A.** laboratories have implemented an Integrated Management System based on the following standards:

- **PN-EN ISO 9001** Quality Management System,
- **PN-N 18001** Occupational Health and Safety Management System,
- **PN-EN ISO 14001** Environmental Management System,
- **PN-EN ISO/IEC 17025** Laboratory Quality Management System.

Analyses carried out in our laboratories are recognised for their high quality, this being evidenced by the Certificate of Accreditation of the Polish Centre for Accreditation No. AB 391, dated 12 April 2002, held by us for many years.

**POLWAX S.A.** laboratories take part in proficiency testing programmes/interlaboratory comparisons organised by:

- **Institute for Interlaboratory Studies (IIS) in The Netherlands,**
- **POLLAB Petrol-Gaz Division,**
- **LGC Standards Sp. z o.o.,**
- **Nofer Institute for Occupational Medicine in Łódź, Poland,**
- **Centre for Environmental Research and Control in Katowice, Poland,**
- **Cracow University of Technology, and**
- **ISOTOP S.C. consulting company.**



As regards technology services, our laboratories carry out research, implementation and service work in the area of lubricants and paraffin waxes.

A complete offer of testing services comprises over 300 types of analyses, of which 65 employ accredited methods.

We offer competitive prices and are open to negotiations of price terms. Our regular contractors or customers ordering comprehensive services usually benefit from special prices.

You are welcome to use our services 7 days per week.

We offer a professional approach and short lead times.

**Contact persons:**

**Head of the Laboratory**

**Anna Król**

tel.: +48 32 3237 343

fax: +48 32 3237 304

anna.krol@polwax.pl

**Laboratory - Jasło Branch**

**Head of the Laboratory**

**Jasło Branch**

**Ewa Siwiec**

tel.: +48 13 4466 460

fax: +48 13 4466 463

ewa.siwiec@polwax.pl

**Laboratory - Czechowice-Dziedzice Branch**

**Head of the Laboratory**

**Czechowice-Dziedzice Branch**

**Tadeusz Bałuch**

tel.: +48 32 3237 410

fax: +48 32 3237 304

tadeusz.baluch@polwax.pl



## List of tables containing information on the tests carried out in Polwax S.A. laboratories

Table 1: **Motor gasolines**

Table 2: **Diesel fuels**

Table 3: **Fatty Acid Methyl Esters (FAME)**

Table 4: **Liquefied petroleum gas (LPG)**

Table 5: **Lubricating, engine and hydraulic oils**

Table 6: **Greases**

Table 7: **Rapeseed oils**

Table 8: **Heating oils and used oils**

Table 9: **Bitumen**

Table 10: **Petroleum waxes, paraffin waxes**

Table 11: **Water and effluents**

Table 12: **Work environment**



**TABLE 1**

In accordance with the quality requirements applicable to liquid fuels (Journal of Laws of 2015, Item 1680) and PN-EN 228:2013-04 – **MOTOR GASOLINES**.

PARAMETER	STANDARD	*
Research Octane Number (RON)	PN-EN ISO 5164	S
Motor Octane Number (MON)	PN-EN ISO 5163	S
Lead content	PN-EN 237	
Density at 15°C	PN-EN ISO 3675 PN-EN ISO 12185	A
Sulphur content	PN-EN ISO 20846 PN-EN ISO 20884	A
Induction period	PN-EN ISO 7536	S
Inherent resin content (after washing with solvent)	PN-EN ISO 6246	
Corrosiveness to copper (3 hours at 50°C)	PN-EN ISO 2160	A
Appearance	Visual assessment	
Content of alkenes and aromatic hydrocarbons	PN-EN 15553	
Benzene content	PN-EN 238	
Content of oxygen, organic oxygenate compounds (methanol, ethanol, isopropyl alcohol, isobutyl alcohol, tertbutyl alcohol, ethers, other organic oxygenate compounds)	PN-EN 13132	
Vapour pressure	PN-EN 13016-1	A
Distillation (characteristics)	PN-EN ISO 3405	A
Vapour Lock Index	PN-EN 228 Item 5.7.2	

\*Abbreviations: A- accredited methods, S- subcontracted tests

Analyses determining additional quality parameters of motor gasolines: methods other than stipulated in the Ordinance.

Oxygen compounds, group-type composition, octane number

GS-1000

Polwax S.A. laboratory provides fuel sampling services using accredited methods: PN-EN ISO 3170 (from tanks) and PN-EN ISO 14275 (from fuel dispensers).



**TABLE 2**

In accordance with the quality requirements applicable to liquid fuels (Journal of Laws of 2015, Item 1680) and PN-EN 590:2013-12 - **DIESEL FUELS**

PARAMETER	STANDARD	*
Cetane number	PN-EN ISO 5165	S
Cetane index	PN-EN ISO 4264	A
Density at 15°C	PN-EN ISO 3675 PN-EN ISO 12185	A
Content of polycyclic aromatic hydrocarbons	PN-EN 12916	
Sulphur content	PN-EN ISO 20846 PN-EN ISO 20884	A
Flash point	PN-EN ISO 2719	A
Carbon residue (on 10% distillation residue)	PN-EN ISO 10370	
Ash	PN-EN ISO 6245	
Water content	PN-EN ISO 12937	A
Contamination content	PN-EN 12662	A
Corrosiveness to copper (3 hours at 50°C)	PN-EN ISO 2160	A
Oxidation stability	PN-EN ISO 12205	
Oxidation stability (for diesel fuel containing over 2% (V/V) of FAME)	PN-EN 15751	
Lubricity, corrected wear scar diameter (WS 1,4) at 60°C	PN-EN ISO 12156-1	S
Viscosity at 40°C	PN-EN ISO 3104	A
Distillation characteristics	PN-EN ISO 3405	A
Content of fatty acid methyl esters (FAME)	PN-EN 14078	A
Cold filter plugging point (CFPP)	PN-EN 116	A
Cloud point	PN-ISO 3015	A

\*Abbreviations: A- accredited methods, S- subcontracted tests

Analyses determining additional quality parameters of diesel fuels: methods other than stipulated in the Ordinance.

Cetane number, cetane index, density, PAH, aromatics, calorific value

Cetane 2000

Polwax S.A. laboratory provides fuel sampling services using accredited methods: PN-EN ISO 3170 (from tanks) and PN-EN ISO 14275 (from fuel dispensers).

## TABLE 3

In accordance with the quality requirements applicable to methyl ester liquid biofuels (Journal of Laws of 2015, Item 780) and PN-EN 14214+A1:2014-04 – **FAME**.

PARAMETER	STANDARD	*
Content of fatty acid methyl esters (FAME)	PN-EN 14103	A
Density at 15°C	PN-EN ISO 3675 PN-EN ISO 12185	A
Viscosity at 40°C	PN-EN ISO 3104	A
Flash point	PN-EN ISO 2719 PN-EN ISO 3679	A
Sulphur content	PN-EN ISO 20846 PN-EN ISO 20884	
Cetane number	PN-EN ISO 5165	S
Sulfated ash content	PN-ISO 3987	A
Water content	PN-EN ISO 12937	A
Sediment content	PN-EN 12662	A
Corrosiveness to copper (3 hours at 50°C)	PN-EN ISO 2160	A
Oxidative stability at 110°C	PN-EN 14112	A
Acid number	PN-EN 14104	A
Iodine value	PN-EN 14111	A
Content of linolenic acid methyl ester	PN-EN 14103	A
Content of linolenic acid methyl esters (≥4 double bonds)	PN-EN 15779	S
Methanol content	PN-EN 14110	A
Content of mono-, di-, triglyceride, free glycerol and total glycerol	PN-EN 14105	A
Group 1 metal content (Na+K)	PN-EN 14538	A
Group 2 metal content (Ca+Mg)	PN-EN 14538	A
Phosphorus content	PN-EN 14107	A
Cold filter plugging point (CFPP)	PN-EN 116	A
Cloud point	PN-ISO 3015	

\*Abbreviations: A- accredited methods, S- subcontracted tests

Analyses determining additional quality parameters of FAME: methods other than stipulated in the Ordinance.

Carbon residue (on 10% distillation residue)

PN-EN ISO 10370

Polwax S.A. laboratory provides fuel sampling services using accredited methods: PN-EN ISO 3170 (from tanks) and PN-EN ISO 14275 (from fuel dispensers).

**TABLE 4**

In accordance with the quality requirements applicable to liquefied gas (Journal of Laws of 2016, Item 540) and PN-EN 589+A1:2012 – **LPG**.

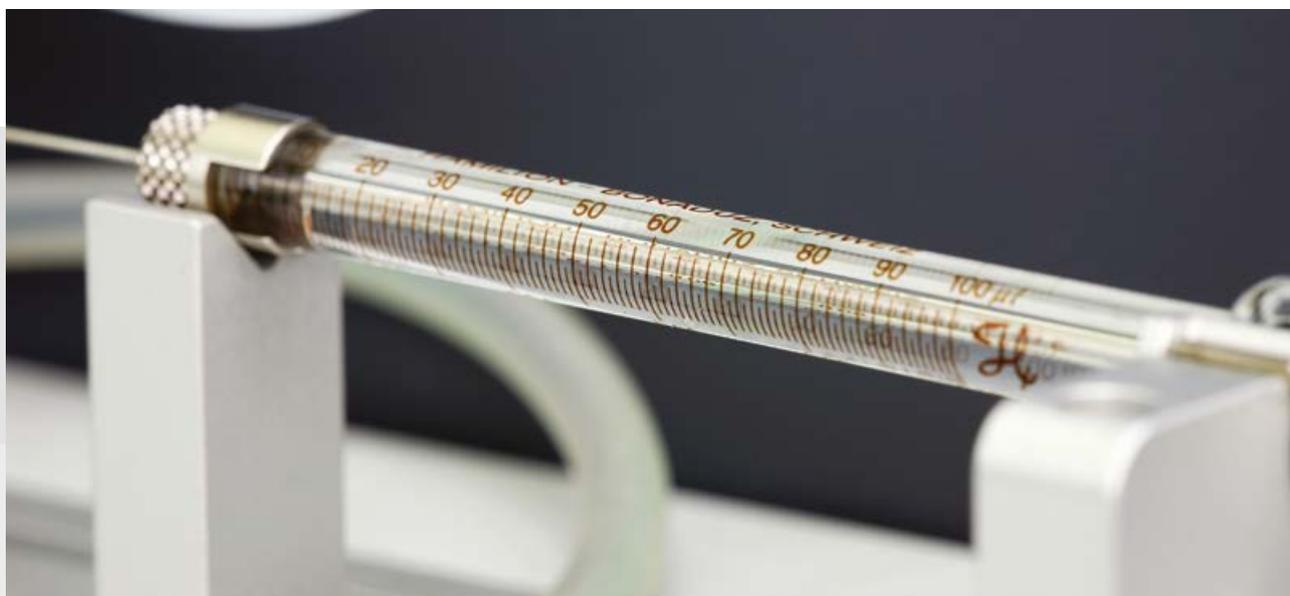
PARAMETER	STANDARD	*
Motor Octane Number (MON)	PN-EN 589 Annex B	A
Total diene content, hydrocarbon content	PN-ISO 7941	A
Hydrogen sulfide	PN-EN ISO 8819	
Total sulphur content	ASTM D 6667	A
Corrosiveness to copper (1 hour at 40°C)	PN-EN ISO 6251	A
Evaporation residue	PN-EN 15471	
Relative vapour pressure at 40°C	PN-EN ISO 8973 +PN-EN 589 Annex C	A
Temperature at which relative vapour pressure is no less than 150kPa	PN-EN ISO 8973 +PN-EN 589 Annex C	A
Water content	PN-EN 15469	
Odour	PN-EN 589 Item 6.3 Annex A	

\*Abbreviations: A-accredited methods.

Analyses determining additional quality parameters of LPG: methods other than stipulated in the Ordinance.

Density at 15°C	PN-ISO 8973	A
-----------------	-------------	---

Polwax S.A. laboratory provides LPG sampling services using the PN-EN ISO 4257 method (from fuel dispensers).



**TABLE 5****LUBRICATING, ENGINE AND HYDRAULIC OILS**

PARAMETER	STANDARD
Density	PN-EN ISO 12185 PN ISO 3675
Total base number - perchloric acid (HClO <sub>4</sub> ) potentiometric titration method	PN-ISO 3771
Corrosiveness to metals	PN-EN ISO 2160 PN-C-04093
Kinematic viscosity of bright products	PN-EN ISO 3104
Kinematic viscosity of dark products	PN-EN ISO 3104
Viscosity index from kinematic viscosity at 40°C and at 100°C	PN-ISO 2909
Resistance of lubricating oils to shear stress using a diesel injector nozzle	PN-C-04165 PN-EN ISO 20844
Colour	PN-C-04034
CCS structural viscosity	PN-C-04150
HTHS viscosity at high temperatures	PN-C-04098
Foaming characteristics	PN-C-04055 PN-EN ISO 6247
High temperature foaming characteristics	ASTM D 6082
Sulfated ash	PN-ISO 3987
Congealing or pour points	PN-EN ISO 3016 PN-C-04016
Flash point - Cleveland open cup method	PN-EN ISO 2592
Water content (distillation method)	PN-ISO 3733
Volatile matter content by Noack's method	PN-C-04124
Demulsifying properties: oil-water	PN-C-04065
Rust-preventing characteristics of mineral oils (corrosion on a spindle)	PN-C-04082
Total acid number	PN-C-04049 PN-ISO 6618
Determination of anti-wear properties using a four-ball tester - limit wear load	PN-C-04147
Determination of anti-wear properties using a four-ball tester – Hertz Load	PN-C-04147
Determination of anti-wear properties using a four-ball tester – Weld Point	PN-C-04147

Determination of anti-wear properties using a four-ball tester – scar diameter	PN-C-04147
Air-release properties of oils	PN-C-04174
FZG Test	PN-C-04169
Saponification number	PN-ISO 6293-2
Bookfield viscosity	PN-C-04023
Filterability	PN-C-04188
Ash	PN-ISO 6245
Miscibility (engine oils, base oils, process oils)	In-house method

In addition to the foregoing standard analyses, POLWAX S.A. laboratory carries out a number of specialist tests other than those listed in the Table above.



**TABLE 6****GREASES**

PARAMETER	STANDARD	*
Penetration of lubricating greases	PN-ISO 2137	A
Penetration of lubricating greases after prolonged kneading	PN-ISO 2137	
Penetration of lubricating greases at low temperatures	PN-ISO 13737	
Drop melting point	PN-ISO 2176	
Drop melting point - Ubbelohde's method	PN-C-04020	
Drop melting point	ASTM 2265 PN-ISO 6299	A
Determination of anti-wear properties using a four-ball tester - limit wear load	PN-C-04147	
Determination of anti-wear properties using a four-ball tester – Hertz Load	PN-C-04147 ASTM D 2596	
Determination of anti-wear properties using a four-ball tester – Weld Point	PN-C-04147	
Determination of anti-wear properties using a four-ball tester – scar diameter	PN-C-04147 ASTM D 2266	
Oil separation	ASTM D 1742	
Oil separation at high temperatures	PN-V-04047	
Oil separation	IP121	
Corrosiveness to metals	PN-C-04093 ASTM D 4048	
Corrosion preventive properties of greases	ASTM D 1743	
Corrosion preventive properties in the humidity cabinet	PN-C-04097 PN-C-04154 ASTM D1748	
Abrasive substances	PN-C-04142	
Structural stability	PN-C-04136	
Mechanical stability	PN-C-04144	
Solid foreign matter	PN-C-04141	
Relative viscosity using Engler's viscometer	PN-C-04014	
Free alkali content	PN-C-04152 ASTM D128	
Water extract pH value	PN-C-04064	
Evaporation loss of greases at a wide temperature range	ASTM D 2595 ASTM D 972	

Acid number	PN-ISO 6618	
Water content (distillation method)	PN-ISO 3733	
Appearance	Visual assessment	
Dynamic water washout characteristics	PN-C-04099 ASTM D 1264	
Flash point	PN-EN 2592 ASTM D92	
Leakage tendencies of automotive wheel bearing greases	PN-C-04102 ASTM D1263	
Ash	PN-C-04077 ASTM D482	
Tendency of grease to flow off a metal surface	In-house method	
Adherence of grease on a metal surface	PN-C-04078	
Oxidation stability	PN-C-04143 ASTM D 942	
Breaking point	PN-EN 12593	
Saponification number	PN-ISO 6293-2	

\*Abbreviations: A- accredited methods



**TABLE 7****RAPESEED OILS**

PARAMETER	STANDARD
Density at 15°C	PN-EN ISO 3675 PN-EN ISO 12185
Colour - Saybolt method	PN-V-04016
Acid number and free fatty acids	PN-EN ISO 660
Iodine value	PN-EN ISO 3961
Peroxide value	PN-ISO 3960
Water content	PN-EN ISO 12937
Insoluble impurities content	PN-EN ISO 663
Moisture and volatile matter content	PN-EN ISO 662
Flash point	PN-EN ISO 2719 PN-EN ISO 3679
Flash point - Cleveland open cup (COC) method	PN-EN ISO 2592
Viscosity at 40°C	PN-EN ISO 3104
Oxidative stability	PN-EN ISO 6886
Saponification number	PN-EN ISO 3657
Calcium content	PN-EN 14538
Phosphorus content	PN-ISO 10540-3
Sulphur content	PN-EN ISO 20884
Calorific value	PN-C-04062



**TABLE 8****HEAVY HEATING OILS AND USED OILS**

PARAMETER	STANDARD
Density	PN-EN ISO 12185 PN-EN ISO 3675
Calorific value	PN-C-04062
Flash point - Pensky-Martens closed cup method	PN-EN ISO 2719
Flash point - Cleveland method	PN-EN ISO 2592
Kinematic viscosity – dark products	PN-EN ISO 3104
Pour point	PN-ISO 3016
Sulphur content	ASTM D 2622
Sediment - extraction method	PN-EN ISO 3735
Water and sediment content - centrifuge method	PN-C-04087
Water content (distillation method)	PN-ISO 3733
Ash	PN-EN ISO 6245
Vanadium content	PN-C-04029
Simple distillation - manual method	PN-EN ISO 3405
Acid number	PN-ISO 6618
Chlorine content	PN-C-04071
Emulsifying agents content	PN-C-96050 Item 6.4
Saponifiable substances content	PN-C-96050 Item 6.5



**TABLE 9****BITUMEN**

PARAMETER	STANDARD	*
Needle penetration	PN-EN 1426	A
Bitumen softening point - Ring and Ball method	PN-EN 1427	A
Solubility	PN-EN 12592	
Fraass breaking point	PN-EN 12593	
Resistance to hardening under influence of heat and air - RTFOT method	PN-EN 12607-1	
Flash and fire points - Cleveland open cup method	PN-EN ISO 2592	A
Density - pyknometer methods	PN-EN ISO 3838	
Water content (distillation method)	ASTM D 95 PN-ISO 3733	
Storage stability (tube test)	PN-EN 13399	
Elastic recovery	PN-EN 13398	
Density - water displacement method	ASTM D 3289	
Tensile properties	PN-EN 13589	
Paraffin wax content in bitumen (distillation method)	PN-EN 12606-1	
Resistance to hardening under influence of heat and air - TROT method	PN-EN 12607-2	S
Water extract pH value	PN-8C-04064	
Dynamic viscosity of modified bitumen by cone and plate method	PN-EN 13702	S
Preparation of test sample	PN-EN 12594	

\*Abbreviations: A- accredited methods, S- subcontracted tests



## BITUMINOUS EMULSIONS

PARAMETER	STANDARD
Characterisation of perceptible properties	PN-EN 1425
Binder content	PN-EN 1428
Efflux time	PN-EN 12846-1
Residue on sieving	PN-EN 1429
Storage stability by sieving	PN-EN 1429
Adhesivity to aggregate	PN-EN 13614
Polarity	PN-EN 1430
Breaking value	PN-EN 13075-1
Mixing stability with cement	PN-EN 12848
Settling tendency after 7-day storage	PN-EN 12847
Adhesion	PN-EN 13808
pH value of bituminous emulsions	PN-EN 12850
Recovered and stabilised bitumen	PN-EN 13074-1 PN-EN 13074-2
Needle penetration – recovered bitumen	PN-EN 1426
Bitumen softening point - Ring and Ball method - recovered bitumen	PN-EN 1427
Elastic recovery – recovered bitumen	PN-EN 13398
Cohesion, tensile properties – recovered bitumen	PN-EN 13589 PN-EN 13703



**TABLE 10****PETROLEUM WAXES, PARAFFIN WAXES**

PARAMETER	STANDARD	*
Needle penetration	PN-C-04161	A
Density	PN-EN ISO 3675	
Kinematic viscosity	PN-EN-ISO 3104	
Acid and base numbers	PN-C-04066 PN-ISO 6618	
Iodine value	PN-ISO 3961	
Base number	PN-ISO 3771	
Saponification number	PN-EN ISO 6293-2 PN-EN ISO 3657 PN-C-04043	
Water extract pH value	PN-C-04064	
Water content (distillation method)	PN-EN-ISO 9029	
Solid foreign matter content	PN-C-04089	
Contamination content	PN-C-96115 Item 3.4	
Ash	PN-EN ISO 6245	
Flash point - Cleveland open cup method	PN-EN ISO 2592	
Oil content	PN-C-04160	
Drop melting point	ASTM D 127	
Congealing point	PN-ISO 2207 PN-C-04022 PN-C-04018	
Drop melting point - Ubbelohde's method	PN-ISO 6244 PN-C-04020	
Determination of odour	PN-C-04353	
Appearance	Visual assessment	
Colour - Saybolt method	PN-V-04016	
Colour - iodine scale method	PN-C-96115 Item 3.5	
Colour stability	PN-C-96115 Item 3.6	
PAH content test	Ph.Eur.monograph.1034 DAB 10	

Light refractive index	PN-C-04952	
Sulphur content	ASTM D 2622 PN-EN ISO 20884	
Corrosiveness to metals	PN-C-04093	
Analysis of petroleum waxes using gas chromatography method	ASTM D 5442	
RAL test for colour stability	RAL-GZ-041	
Benzene and toluene content	EWF Method 002/03	

\*Abbreviations: A- accredited methods, S- subcontracted tests

### PARAFFIN EMULSIONS

PARAMETER	STANDARD	*
Density	PN-EN ISO 3675	
Dry matter content	Technical Requirements Item 3.3	
pH value	PN-C-04963	
Dynamic viscosity by Brookfield test method	PN-ISO 2555	



**TABLE 11****WATER AND EFFLUENTS**

PARAMETER	STANDARD	*
Mineral index using gas chromatography method	PN-EN ISO 9377-2	A
Chloride - Mohr's method	PN-ISO 9297	A
Phosphorus - ammonium molybdate spectrometric method	PN-EN ISO 6878	A
Non-polar aliphatic hydrocarbons by infra-red spectrometry	PN-C-04565.01	A
Dissolved oxygen	PN-EN ISO 5814	A
Chemical oxygen demand	PN-ISO 6060	A
Biochemical oxygen demand after n days (BODn)	PN-EN 1899-1,2	A
Suspended solids	PN-EN 872	A
Ether extract	PN-C-04573.01	A
pH value	PN-EN ISO 10523	A
Sum of calcium and magnesium	PN-ISO 6059	A
Chemical oxygen demand (ST-COD)	PN-ISO 15705	A
Phenol index	PN-ISO 6439	A
Electrical conductivity	PN-EN 27888	A
Ammonium nitrogen	PN-ISO 5664	A
Sulfates	MOJ 037	A
Selected elements by ICP-OES method	PN-EN ISO 11885	
Sulfates (VI)	HACH LANGE TEST	
Dissolved substances	PN-C-04541	
Dissolved oxygen - iodometric method	PN-EN 25813	
Water hardness, calcium and magnesium content	HACH LANGE TEST	
Permanganate index	PN-EN ISO 8467	
Total alkalinity	HACH LANGE TEST	
Iron	HACH LANGE TEST	
Total nitrogen	HACH LANGE TEST	

Ammonia nitrogen NH <sub>3</sub> -N	HACH LANGE TEST	
Nitrates NO <sub>3</sub> -N	HACH LANGE TEST	
Nitrites NO <sub>2</sub> -N	HACH LANGE TEST	
Biochemical oxygen demand (BODn) OXY TOP	In-house method	
Piezometer depth	In-house method	
Temperature	In-house method	
Phosphates	HACH LANGE TEST	
Total organic carbon	PN-EN 1484 In-house method	
Sulfides	PN-C-04566-02	
Total and composite alkalinity	PN-EN 9963-1	

\*Abbreviations: A- accredited methods

Polwax S.A. laboratory provides services consisting in sampling of water using piezometer in accordance with the PN-ISO 5667-10 accredited method and sampling of water from technical installations in accordance with PN-EN ISO 5667-1.



**TABLE 12****WORK ENVIRONMENT**

PARAMETER	STANDARD	*
Occupational noise exposure	PN-N-01307 PN-EN ISO 9612	A
Free crystalline silica content	PN-Z-04018-04	A
Respirable dust concentration	PN-Z-04030-06	A
Total dust concentration	PN-Z-04030-05	A
Mineral oil liquid phase	PN-Z-04108-05	A
Light intensity	PN-E-04040.03	A
Concentration of carbon monoxide	PN-ISO 8760	
Ergonomics of the thermal environment	PN-EN ISO 8996	
Percentage content of oxygen and flammable gases in the air	In-house method	

\*Abbreviations: A- accredited methods

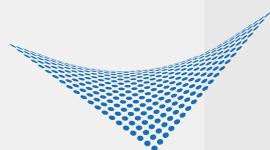
Polwax S.A. laboratory provides sampling services using the PN-Z-04008-07:2002+Az1:2004 accredited method in order to assess the occupational exposure to:

- industrial dust; and
- organic substances





[www.polwax.pl](http://www.polwax.pl)



**polWAX**  
*Industrial paraffin*

**POLWAX S.A.**

ul. 3 Maja 101  
PL 38-200 Jasło

tel. +48 13 446 62 41

fax +48 13 446 62 52

NIP 685-20-14-881

REGON 370490581