



# Process waters

Analysis of cooling water from production lines, water boilers, cooling towers, ...

## Elemental analysis

Code	Parameter	Standard
EA006/22	Ammonium	NF T 90-015-1/2
EA007	Kjeldahl nitrogen	NF EN 25663
EA017	Total nitrogen	NF EN ISO 11905-1
EA018	Free and total chlorine	NF EN ISO 7393-2
EA009	Chloride	Rodier 8th edition
EA002	Conductivity	NF EN 27888
EA028	Easily liberatable and total cyanide	ISO 6703-1/2
EA030/39	Biochemical oxygen demand after n days BODn	NF EN 1899-1/2
EA010	Chemical oxygen demand COD	ISO 15705
EA012	Fluoride	NF T 90-004
EA024	Permanganate index	NF EN ISO 8467
EA005	Settleable solids	NBN T 91-101
EA004	Suspended solids	NF EN 872
EA042	Volatile suspended solids	Internal method
EA043	Mercaptans	Rodier 8th edition
EA016	Nitrate	SM 4500-NO3-E
EA026	Nitrite	NF EN 26777
EA008	Orthophosphate	NF EN ISO 6878
EA029	Dissolved oxygen	NF EN 25814
EA001	pH	NF T 90-008
EA045/46	Dry residues at 105°C and 180°	NFT 90-029
EA038	Sulfate	NFT 90-040
EA011	Sulfate	NBN 647
EA047	Sulfide	Rodier 8th edition
EA003	Alkalinity	NF EN ISO 9963-1
EA021	Sum of calcium and magnesium	NFT 90-003
EA020	Turbidity	NF EN ISO 7027
EA049	Urea	Internal method

## Sample treatment

Code	Parameter	Standard
EA040	0.45 µm filtration	
EA041	Aqua regia digestion	NF EN ISO 15587

## Metals

Code	Parameter	Standard
EA015	Antimony - Arsenic - Barium - Beryllium - Boron - Cadmium - Calcium - Chromium - Cobalt - Copper - Iron - Lead - Magnesium - Manganese - Molybdenum - Nickel - Phosphorus - Potassium - Selenium - Silicon - Silver - Sodium - Strontium - Sulfur - Tin - Titanium - Vanadium - Zinc	ISO 11885
EA037	Cadmium - Chromium - Cobalt - Copper - Lead - Nickel - Silver	NF EN ISO 15586
EA013	Chromium (VI)	ISO 11083
EA014	Mercury	NF EN 13506
EA050	Antimony by ICP-OES, hydride method	Internal method
EA051	Arsenic by ICP-OES, hydride method	Internal method
EA052	Selenium by ICP-OES, hydride method	Internal method

## Organic pollutants

Code	Parameter	Standard
EA031	Anionic surfactants (methylene blue index) MBAS	NF EN 903
EA032	Cationic surfactants	Internal method
EA033	Non-ionic surfactants	Internal method
EA034	Phenol index	ISO 6439
EA036	Total and apolar hydrocarbons	NBN T 91-502
EA035	Fatty matters extractable with petroleum ether	Internal method

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# Metals and ores

ECOCHIM is able to perform chemical and spectrometric analysis of all types of metal alloys and ores :

- ✓ Cast iron, steel, alloy steel, stainless steel, ...
- ✓ Brass, white metal, aluminium, zinc, ...
- ✓ Ultra pure metals
- ✓ Mill parings, ores, ...

And offers a full range of steel product and co-product analysis.



Code	Parameter	Standard
EC-ME001	Steels and irons - Determination of manganese	NBN - EN 10071
EC-ME002	Steels and irons - Determination of chromium content	ISO 4937
EC-ME003	Steels and irons - Determination of nickel content	ISO 4938
EC-ME004	Steels and cast irons - Determination of vanadium content	ISO 4947
EC-ME005	Steels and cast irons - Determination of total silicon content	ISO 439
EC-ME006	Steels - Determination of manganese content	ISO 10278
EC-ME007	Steels and irons - Determination of nickel, copper and cobalt contents	ISO 13898
EC-ME008	Steels - Determination of molybdenum, niobium, and tungsten contents in alloyed steel	ISO 13899
EC-ME009	Steels - Determination of silicon content	ISO 17055
EC-ME010	Ferronickel - Determination of nickel content	ISO 6352
EC-ME011	Ferronickel - Determination of silicon content	ISO 8343
EC-ME012	Nickel alloys - Determination of iron content	ISO 7528
EC-ME013	Nickel alloys - Determination of chromium content	ISO 7529
EC-ME014	Nickel alloys - Determination of molybdenum	ISO 11435
EC-MI001	Iron ores - Determination of total iron content	ISO 2597-1
EC-MI002	Iron ores - Determination of aluminium, calcium, phosphorus, magnesium, manganese, silicon and titanium	ISO 11535

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# Metal surface treatment

## Experience gained over the years

For many years our laboratory carries out quality controls on pickling and galvanizing lines. Our major concern is to provide quickly reliable results for our clients, allowing to adjust if necessary bath-specific physico-chemical parameters before dipping metal parts.

## Solutions fitted customer's requirements

In order to meet client's expectation, our laboratory is equipped with high-performance equipment and automated instruments that can process large sample batches. Results are sent out quickly.

## Qualified staff with experience

Our experience and our know-how in this field allow us to treat complex problems and to develop adapted method for each particular case.

## Our range of analytical services

1) Parameters applied to the galvanizing industry (degreasing bath, dezincification bath, pickling bath and fluxing bath) :

- Inhibitors
- pH at selected temperature
- Redox measurement
- Alkalinity
- Turbidity point
- COD
- Chlorides
- Free acidity
- Fatty matters
- NH<sub>4</sub>Cl
- Metals (Fe, Zn, ...)



2) Parameters applied to pickling baths (coil treatment line) :

- Inhibitors
- Density
- Total iron
- Ferrous iron
- Acidity
- Metals (Al, As, Cd, Cr, Mn, Ni, ..., Zn)



3) Development of assay methods for the determination of corrosion inhibitors in pickling baths :

We research and develop determination methods depending on the specificity of used inhibitors, allowing to better control their application in pickling baths.

## A range of complementary services

We also analyse the following in related fields :

1) Zinc electrolysis baths :

In order to optimise the electrolysis process for making pure zinc, some of our clients ask us to determine the concentration of trace metals in their electrolysis baths after each production step. Therefore we regularly receive samples which are processed and analyzed with very low detection levels.

Example of analyzed sample matrix :

100 g/l Zn  
4 g/l Mn  
150 g/l H<sub>2</sub>SO<sub>4</sub>

Detection limits for the following elements :

- Ag, As, Cd, Co, Cr, Cu, Mo, Ni, Sb, Se, V : 0,010 mg/l
- Hg : 0,001 mg/l

2) Chrome plating bath, nickel plating bath, tin plating bath, copper plating bath and anodizing bath.



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# Petroleum products

ECOCHIM carries out lubricants and hydraulic oils analysis such as :

- ✓ Viscosity analysis
- ✓ Saponification number determination
- ✓ Basic number determination
- ✓ Acid number determination
- ✓ Water detection (KF)
- ✓ Sediment content evaluation
- ✓ Wear metals, contaminants and additives determination (motors, gear reducers, ... )

And also offers analysis of products such as bitumen, fuels, white spirit, kerosene, xylene, ...



Code	Parameter	Standard
EC-HU001	Viscosity	ASTM D 445
EC-HU002	Density	ASTM D 1298
EC-HU003	Flash point	ADTM D 92
EC-HU004	Pour point	ASTM D 97
EC-HU005	Acid number	ASTM D 664
EC-HU006	Basic number	ASTM D 2896
EC-HU007	Saponification number	ASTM D 94
EC-HU008	Water by potentiometric Karl Fischer titration	ASTM D 4377
EC-HU009	Detection of glycol-base antifreeze in used lubricating oils	ASTM D 2982
EC-HU010	Level of contamination by solid particles	ISO 4406
EC-HU011	Sediment by membrane filtration	ASTM D 4807
EC-HU012	Additive elements in lubricating oils	ASTM D 4951
EC-HU013	Additive elements, wear metals and contaminants in used lubricating oils	ASTM D 5185
EC-HU014	Determination of nickel, vanadium and iron in crude oils and residual fuels	ASTM D 570

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