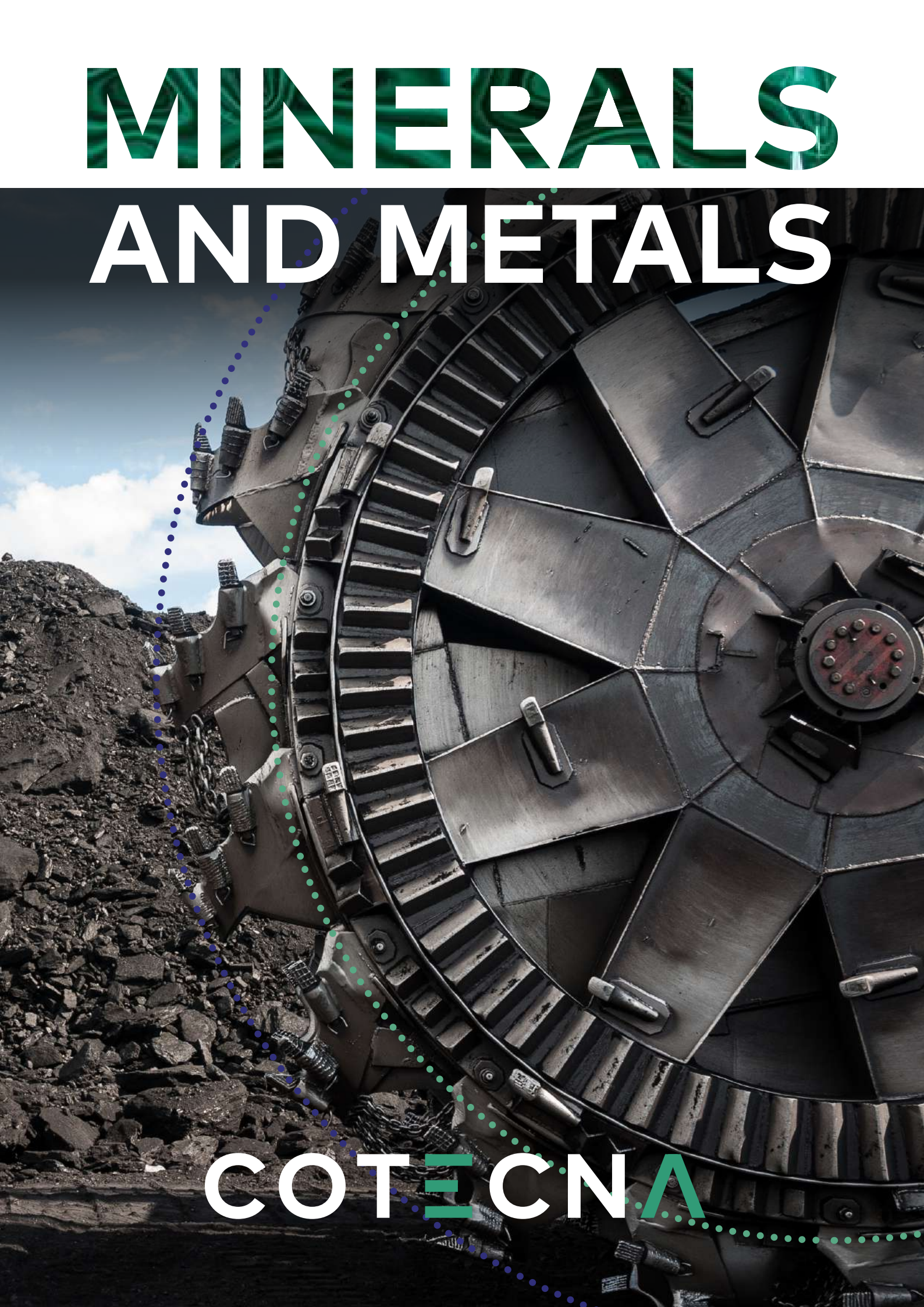


MINERALS

AND METALS



COTETECNA^



COTECNA

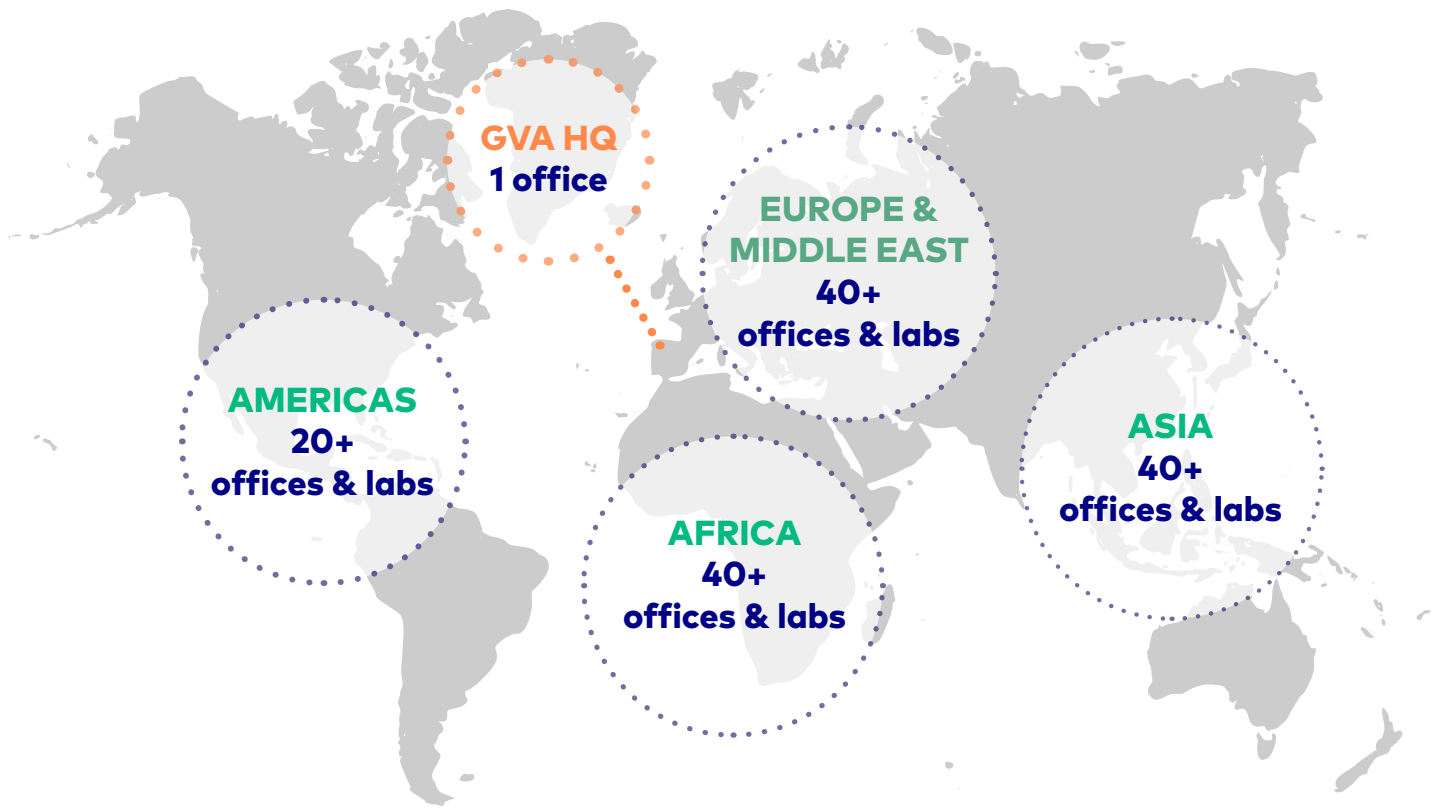
IS A GLOBAL PROVIDER OF

TESTING

INSPECTION

& CERTIFICATION

SERVICES



BE > **ESSENTIAL**

Our services allow global industries to operate securely & without disruption.

50
countries

5,000+
employees

An icon consisting of eight stylized human figures in a row. From left to right: a construction worker with a hard hat, a person with a graduation cap, a person with a headset, a construction worker with a hard hat, a person with a graduation cap, a person with a headset, a construction worker with a hard hat, and a person with a headset.



Founded in Switzerland in 1974, Cotecna started off as a family business and has now grown to become a world-class international player. Today, our trusted network of professionals and certified laboratories applies industry approved standards and provides proven expertise to help clients across five key industries

WHAT SETS US APART

Building on the past 40 years of great achievements, we are now investing in and transforming the company for continued success in the future.

OUR VISION

We strive to be recognised as the most reliable and customer focused provider of testing, inspection, and certification services in our markets.

We measure ourselves by the value we add, and by our ability and willingness to go the extra mile in delivering solutions for our customers.

Cotecna is a place where people, as entrepreneurs, find, create, and capture opportunities. This is how we develop our business. This in turn makes Cotecna a great place to grow for everyone.

OUR MISSION

We are determined to build a more efficient service delivery platform to better fulfil our customers' needs, in a continuously changing market environment.

We want to be reputed for our service quality, for our people, and their ability to use technical expertise and creativity to anticipate the needs of our customers. This is what makes Cotecna different.

We invest to broaden our geographical network and expand our range of technical capabilities and skills. This allows us to offer a portfolio of services which is evolving along with our customers' needs.

We also invest to develop an agile organisation. An organisation that enables people to respond fast, take ownership, make decisions, and achieve results.

Cotecna is a people business, and together we create an environment that is inclusive, where great people can engage and grow.

OUR VALUES

Our core values are inspired by our family spirit and they guide our behaviour for future success.

We Act With Passion

We make sure to understand our customers, we build trust and we help them do their business better. We help each other to reach our goals, and we celebrate success together.

We Care About People

We treat everyone with the highest level of respect and courtesy. We listen, we are responsive, available, and friendly. We create the right conditions for everyone to be engaged and take part in our journey.

We Are Accountable

We take ownership to drive the business forward. We are not afraid to take risks. We make decisions and follow up on the execution. The way we act and behave according to our values defines good performance.

We Communicate Openly

We speak honestly. We listen and respect different opinions, and we bring issues into the open. We ask for feedback to help us improve and we give feedback with the genuine intention to help.

We Make It Happen

We are pragmatic and simple. We do what it takes to fulfil our promises.

We prioritise carefully and dare to say no when needed. We learn from successes and failures, and we do this together with our customers.



MINERALS & METALS

ONE SOLUTION

- > We verify, audit, weigh, sample and test all types of minerals & metals at the various production stages.
- > Combining strong local relations and know-how, flexibility and pro-activeness, we deliver relevant information when it's most needed.
- > Deploying capabilities and surveyors who are not just technical, communicate clearly through operating network, ensure coverage in key global locations to meet the customer expectation.
- > Clear Standard Operation Procedures are aligned with generally accepted international standards and are produced for operations worldwide.
- > Cotecna strives to bring value to customers through created customized solutions, performance with clear solutions and technical expertise that reduces risks and meet our client's requirements.



KEY PRODUCT LINES

ENERGY MINERALS

- > Steam and Coking Coal, Anthracite, Met-Coke, Petroleum Coke

FERTILIZERS

- > Nitrogen fertilizers, Phosphate fertilizers, Potash, fertilizers (NPK), DAP, Urea, others.

INDUSTRIAL MINERALS

- > Bauxite, Limestone, Magnesite,
- > Kaolin, Gypsum, Cement, Feldspar, Talc, Sands etc.

NON FERROUS BASE METALS AND CONCENTRATES

- > Alumina, Copper Ore and Concentrates, Copper Matte, Lead Ore and Concentrates, Molybdenum, Nickel Concentrates, Tin Concentrates, Zinc Ores, and Concentrates

PRECIOUS METALS

- > Catalysts, Dore, Electronic Scrap, Jewelry/Dental, Refining Salts/Solutions

STEEL INDUSTRY ORES

- > Iron Ores, Iron Ore Concentrate, Iron Ore Pellets, Nickel Ore, Direct Reduced Iron, Manganese Ore, Chrome Ore and Concentrates





SERVICES WE OFFER

LABORATORY SERVICES COAL & COKE

Our Coal % Coke testing labs are accredited by ISO 17025 and analysis are performed in accordance to accepted industry standards ASTM & ISO.

- > Bulk Density
- > Crucible Swelling Index
- > Calcium
- > Chlorine
- > Compositing
- > Fisher Assay
- > Florine
- > Float/Sink Analyses - Fines & Coarse
- > Fluidity
- > Hardgrove Grindability Index
- > Inherent Moisture
- > Loss on Ignition (LOI)
- > Micum Drum Test
- > Petrographic Analysis.

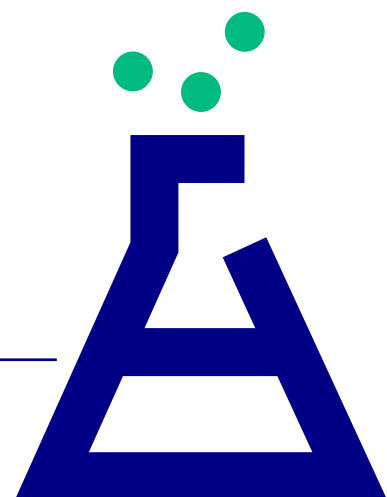
- > Phosphorous in Ash & Coal
- > Trace Elements
- > Tumbling Test - (Dry & Wet)
- > Sample Preparation
- > Sizing Analysis - (Dry & Wet)
- > Surface Moisture

PROXIMATE ANALYSIS:

- > Moisture
- > Volatile Matter
- > Ash
- > Fixed Carbon

ULTIMATE ANALYSIS

- > Carbon
- > Nitrogen
- > Hydrogen
- > Sulphur
- > Oxygen





SERVICES WE OFFER

INSPECTION SERVICES

STORAGE – SHORE FACILITIES INSPECTION

- > Inspection of storage facilities - due diligence
- > Checking the condition warehouse storages, cargo acceptance and multimodal transport units suitability to load and discharge
- > We provide services that support customers in their blending operations
- > Stock monitoring services (controlling flow, tally and certification)
- > Inspection packing and stowage

SAMPLING AND WEIGHT DETERMINATION

- > Sampling of a broad range of mineral and metal commodities.
- > Evaluation and auditing of sampling and weighing processes and equipment
- > Manual or mechanical sampling and monitoring of sampling and weighing processes.
- > Size Analysis
- > Moisture determination

VESSEL-LOADING/ DISCHARGE SERVICES

- > Cargo hold cleanliness inspection
- > On-Off hire bunker survey
- > Draft survey
- > Evaluation and auditing of loading/ discharge processes
- > Inspection and sampling services
- > FMP - TML



STORAGE (WAREHOUSE)

We conduct warehousing inspections or audits to determine their conformity with international guidelines on storage safety and security procedures, fire prevention, stock control, handling, warehouse management etc., in addition to determining the suitability of registration for the acceptance of metal and mineral goods.

BLENDING

We offer sampling assistance in blending operations in order to reduce the levels of penalty elements and to increase or decrease the levels of payable elements for base and precious metals commodities.

SHORE FACILITIES INSPECTION

Inspection of the port area where the loading - unloading takes place in order to prevent contamination of the material with the previous material loaded or discharged.

Checking the loading and unloading area to reduce losses by using tarpaulins during cargo handling operations and avoid sea pollution.

SIZE ANALYSIS

The physical and chemical properties of minerals are conditioned by particle sizes.

To determine the size distribution of the particles the size analysis is performed manually or automatically with the help of Ro-Tap sieve shaker. Size analysis shall be carried out on natural state sample and every effort shall be made to minimise mechanical damage before sizing test is carried out.

The size distribution is expressed as the weight percent of each fraction. They are dry sieving method and wet sieving method.

MOISTURE DETERMINATION

Moisture content is a critical part of every commercial transaction and small variation in moisture content may turn into significant finance losses for one of the parties. The weight is based on net dry-weight basis at discharge port hence final payment will be made following provisional payment based upon final dry weight delivered.

It is therefore very important that proper procedures are followed since wet mass and moisture content are equally

important in determining the mass of the material discharged.

CARGO HOLD CLEANLINESS INSPECTION

Before loading, the vessels cargo holds must be examined to verify they are suitable to receive certain goods.

This includes ensuring that all cargo holds fittings such as bilges and hatch covers are in good order, dry and there is no loose rust scale present that may contaminate the cargo.

Hatch covers seals and securing arrangements should be also checked to verify that they are in good order and complete.

FMP – TML TESTING

Transportable Moisture Limit (TML) & Flow Moisture Point (FMP)

Sampling and testing procedures for bulk cargoes that may liquefy are carried out by international standards and IMSBC Code.

In Cotecna we use Flow Table Test that has been widely used and introduced in the BC Code as a recommendable method to measure the FMP.





SERVICES WE OFFER

LABORATORY SERVICES MINERALS

FIRE ASSAY

- > Fusion, extraction and analysis in our laboratory

ASSAY SERVICES

CLASSICAL AND INSTRUMENTAL CHEMISTRY

- > ISO 17025 accredited laboratories
- > Performing analysis for all base and precious metals as well as minor elements, relevant to the metals & minerals industry

- > Offering competitive turnaround times depending on the analytical requirements and the requested turnaround times,

- > Samples are analysed using classical or instrumental methods

Instrumental Analysis Include:

- > *Inductively Coupled Plasma (ICP)
- > *Atomic Absorption (AA)
- > *X-Ray Fluorescence (XRF)
- > Classical Analysis (wet chem)

ANALYSIS OPTION

- > Party
- > Umpire
- > Assay Exchange

LAB SAMPLE PREPARATION

- > Sample Preparation
- > Screen Analysis
- > Moisture testing
- > Compositing of samples



WHY CHOOSE COTECNA?

- > The proximity of our teams, together with the personal nature of our service, and the fact that we are certified by the industry's recognized bodies, mean we can act quickly and proactively to an inspection request.
- > We guide our clients through local market inspection procedures, acting as a partner in trade and not just a service provider. We communicate regularly and with complete transparency, allowing a client to operate with full assurance over the verification of their shipment.
- > We know that a fast turnaround time is critical to our clients. Not just once, but continually. Each of our laboratories is equipped with the latest technology and is staffed by expert analysts, allowing samples to be tested at speed but without sacrificing quality and accuracy.



COTECNA BRIEF



Cotecna Peru S.A. accredited under the ISO 17025 standard to perform sampling, testing and chemical analysis services for commodities including copper, zinc, lead, silver, and gold concentrates.



Metals & Minerals laboratory in Turkey. 17025 accredited chemical laboratory offer our clients inspection and testing services for a range of ferrous and non-ferrous minerals include solid fuels. We also recently added FMP/TML testing and radiation inspections to our scope of services.



South Africa new facility the largest commercial laboratory in Richards Bay, and the very first lab in South Africa to offer both ISO 17025 and ISO 17020 accredited services.

Middelburg retained ISO 17025

Pt Elizabeth sample preparation facility for Manganese and Chrome Ores



Cotecna Inspection GABON SARL In 2020 Cotecna setup office and sample preparation facility in Librville. Our registration with the marine authority and Gabon ministry of mines for Inspection and testing is complete. We also perform TML testing at the site.



COTECNA INDIA – Covering all type of mineral

Head Office

Branch Offices – New Delhi,
Kolkata, Chennai, Indore,
Kandla, Vizag, Orissa

Operational Units – Haldia, Paradip, Krishnapatnam, Kakinada, Andal,
Singrauli, Nagpur, Bilaspur, Dhanbad, Ramagundam, Mundra, Tuticorin,
Karaikal, Bilaspur

Laboratories – 10 laboratories (7 accredited by

VIZAG – Accredited By NABL

INDORE – Accredited By NABL

KANDLA – Accredited By NABL

DELHI – Accredited By NABL

KOLKATA – Accredited by NABL

BARBIL – Accredited by NABL

CHENNAI – Accredited by NABL

PARADIP – not Accredited by NABL

MUMBAI – not Accredited By NABL

HALDIA – Accredited by NABL

Cotecna Inspection S.A. India – Shiva Analytical is part of the Cotecna Group.

Laboratory is

- > ISO 9001: 2015 Certified
- > ISO/IEC 17025: 2005 Accredited

Laboratory offer our clients inspection and testing services for a range of ferrous and non-ferrous minerals.

- > Estimation of Gold and Silver in ppm and ppb levels using Fire Assay
- > Base metals
- > Penalty elements or impurities





Cotecna China, fully authorised by the applicable government authorities, delivers a broad spectrum of testing, inspection, and certification services to Minerals and Metals industry. We cover such main product lines as coal and coke, nickel ore, bauxite, non-ferrous metals, and fertilisers. Working from China's major ports in close proximity, our team of qualified inspectors and laboratory technicians focuses on reducing commercial risk and ensuring the quality and integrity of minerals and metals for clients.

Cotecna China also provides value-added services including training, supply chain assurance, and technical assistance. Our extensive knowledge and experience, fast turnaround time, one-stop-shop and tailored services make us the partner of choice for our customers.

Offices

Shanghai (North Asia Headquarters)

Beijing

Guangzhou

Hong Kong

Qingdao

Tianjin

Laboratories

(Accredited under ISO17025 and CMA)

Dongguan

Huangdao

Jiangyin

Rizhao

Tangshan

Sample Preparation Facilities

Dongguan

Fangchenggang

Jiangyin

Lianyungang

Linyi

Ningde

Rizhao

Tangshan

Tianjin

Yangjiang



中国出入境检验检疫协会
China Entry-Exit Inspection & Quarantine Association





Cotecna Vietnam, provide a wide range of minerals Inspection services include testing services for Coal in Ho Chi Minh, 17025 accredited laboratory. In addition to coal, Cotecna Vietnam provides sampling services for other minerals & metals commodities.



Cotecna Thailand accredited under the ISO 17025 standard to perform sampling, testing and chemical analysis services for Coal. Cotecna Thailand also perform sampling and testing for other minerals and metals commodities.



Cotecna Indonesia, Cotecna Indonesia, provides sampling and testing services for various minerals commodities.

We have several minerals sample preparation facilities plus 2 Coal labs for proxy assays.

E-dox™ ELECTRONIC CERTIFICATES

The Best Solution to Circulate E-Documents

- > Avoid fraud
- > Save time & money
- > Reduce your carbon footprint

E-dox™ PDF DOCUMENTS ARE:

- > Transmitted in seconds by email
- > Secured by advanced encrypted technology: documents can be saved, renamed and transferred without altering their validity
- > eUCP-600* compliant: documents are electronically signed by authorised signatories and are considered as original documents
- > Easy to authenticate online: the slightest modification would be instantaneously detected by the system
- > Easy to file
- > Environmentally friendly
- > Completely free of charge to clients

A SIMPLE AUTHENTICATION PROCESS

1. Receive your e-certificate as a pdf attachment



2. Upload it on line to validate its authenticity



START THE CONVERSATION

To learn more about our minerals and metals inspection services for businesses and how they can benefit your operations, please don't hesitate to contact us.

HEAD OFFICE

COTECNA INSPECTION SA

Avenue Peschier 41

CH - 1206 Genève

P.O. Box 6155, 1211 Geneva

☎ +41 22 8496900

✉ cotecna.geneva@cotecna.com

REGIONAL OFFICES

North America

☎ +1 833 268 3262

✉ mineralsadmin@cotecnausa.com

South America

☎ +511 719 5574

✉ roberto.freyre@cotecna.com.pe

Western Europe, Africa & the Middle East

☎ +41 22 8496900

✉ cotecna.geneva@cotecna.com

Eastern Europe

☎ +38 0482 335362

✉ cotecna.odessa@cotecna.com

South and Southeast Asia

☎ +65 6278 2933

✉ cotecnasingapore.ops@cotecna.com.sg

North Asia

☎ +86 21 50589719

✉ general.enquiries@cotecna.com.cn

COTECNA
Trust for a moving world

