Foundry and Castings

Rotech is a UKAS accredited metallurgical test laboratory to ISO 17025 and we are fully equipped to meet all your specific needs and requirements within the specialised foundry and castings industry sector. Chemical analysis, mechanical testing-tensile tests at ambient or elevated temperatures, Charpy and Izod impact tests, hardness testing, corrosion testing by salt spray or humidity tests and metallographic testing including SEM/EDAX with full failure investigations are our base activity areas.

Our laboratories provide an extensive range of other testing which, when coupled with years of professional expertise and enthusiasm, can help deliver the assurance and advice needed to validate your processes and products from receipt of raw materials such as ingots and recycled materials through to final casting product quality assurance.

Rotech Laboratories can help you

If you are involved with:
Secondary smelting-we can help with analysis of scrap and independent analysis for casts of ingots supplied to your customers.

Product liability legislation and more focus on global sourcing of castings, often resulting in product quality not being under the direct control of the casting producer, buyer or distributor, increases the requirements for validated product test data.

We can help with:

- Aluminium alloy pressure diecastings-determination of contaminant levels e.g. iron and zinc. Analysis, and where necessary, micros to confirm grain refinement with Na or P and modification. Checking Ti, B and Mg, the latter which may be lost by oxidation. Na or Sr modification in hypereutectic Al-Si alloys
- Copper alloys-chemical analysis of ingots on arrival, analysis / testing of finished castings
- Zinc alloys-We can check Pb, Cd, Sn, Th, and Indium impurities to control embrittlement, excessive grain growth, distortion and susceptibility to intercrystalline corrosion
- Magnesium alloys-chemical analysis to control impurity levels particularly Fe, Cu, Ni, Mn, Zn, Al, Si, Ca and Na. Rare earth additions e.g. in MAG 6, MAG 5 and MAG 13
- Cast irons and steels-selection and control of raw materials including scrap, pig iron and returns. Control of TC%, Si, Mn, S and P. Mechanical testing to confirm correct heat treatment with micro photographs if required

Principle cast alloys we test include:

- Irons-ductile, grey, malleable, SG, heat and wear resistant. BS EN 1561 (BS 14520, ASTM A48, BS EN 1562 (BS 6681), BS EN 1563 (BS 2789), ADI, BS EN 13835 (BS 3468), BS EN 12513 (BS 4844)
- Steels-carbon, low alloy, stainless and heat resistant. BS EN 10293 (BS 3100), BS EN 10213 (BS 1504), BS 3146 Pts 1 and 2, BS 1591, Aerospace series BS HC1 to BS HC 10 (withdrawn), BS HC 401 and others
- Aluminium-High and low pressure diecastings, shell moulding and sand casting, investment (lost wax/precision), ceramic and plaster moulds. BS EN 1706 (BS1490) and Aerospace 'L' series. Main groups Al/Si, Al/Si/Cu, Al/Cu
- Copper-divided into 8 groups-(1) Cu including HC Cu and refined tough pitch, (2) Cu with precipitation hardening elements (3) brasses (4) bronzes and gunmetal (5) Al bronzes (6) Cupro-Ni (7) Si bronzes and brasses (8) Cu with Mn. Main specification BS EN 1982 (BS 1400)
- Zinc-BS EN 1179 (BS 3436) for high purity ingots, BS EN 12844 (BS 1004) mainly diecastings
- Magnesium-Zr free or Mg-Zr alloys. BS EN 1753 (BS 2970), ASTM AZ81, AZ91, Electron alloy A8, ASTM 'C' alloy
- Nickel and alloys-BS 3071 (withdrawn)

We can provide advice and technical support for quality assurance requirements as required by ISO 9001 and ISO/TS 16949. Our laboratory results can be direct inputs to your PPAP, 8D, FMEA and other QA system needs.

Casting Industry Sectors served Secondary smelting, Energy and Power-Petro Chemical, Turbine and Power Generation; Transport-Aerospace, Automotive, Railway, Marine; Construction Equipment, Fluid Handling, Communications and Computers and Domestic and Office Equipment.

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