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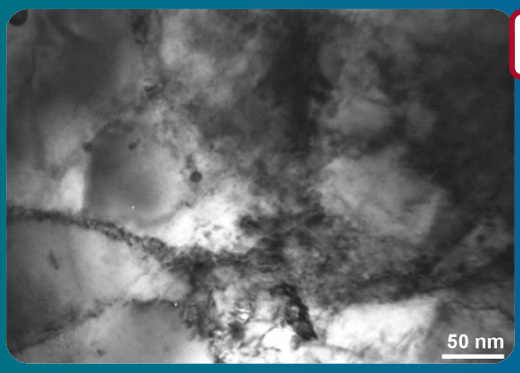


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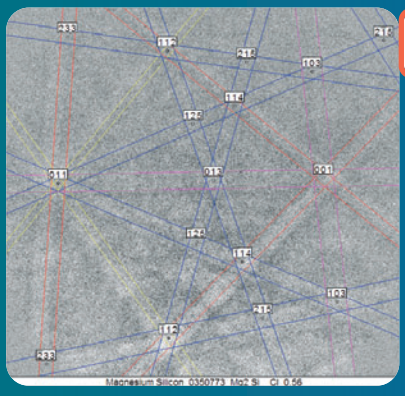
The research paper entitled "Microstructure evolution in CRCS processed strips of CuCr0,6 alloy" by J.P. Stobrawa, Z.M. Rdzawski, W. Głuchowski and W. Malec on a **page 195** evaluates the ability of a continuous repetitive corrugation and straightening (CRCS) technique in creating ultra fine grained copper-chromium strips as well as to determine the microstructure evolution and its influence on grain size refinement. Tests were performed with the 0.8 mm thick CuCr0,6 strips using original die set construction. The changes of mechanical properties as well as microstructure evolution versus circles number of deformation were investigated. The microstructure was investigated using optical and electron microscopy (TEM and SEM equipped with EBSD). A growing trend to use new copper-based functional materials is recently observed world-wide. Within this group of materials particular attention is drawn to those with ultra fine or nanometric grain size of a copper matrix, which show higher mechanical properties than microcrystalline copper. The paper contributes to the mechanical properties of precipitates strengthened ultra fine grained copper – chromium alloy strips obtained by original RCS method and to the microstructure evolution.



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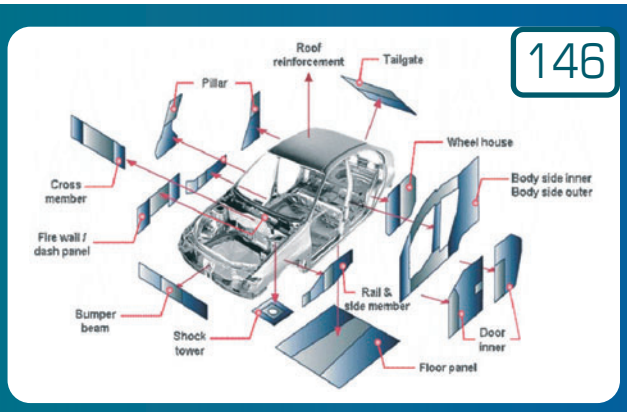
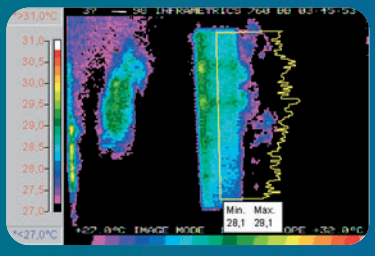
The paper from Materials area made by M. Krupiński, K. Labisz, L.A. Dobrzański and Z. Rdzawski on "Derivative thermo-analysis application to assess the cooling rate influence on the microstructure of Al-Si alloy cast" on a **page 115** describes investigations performed using cast aluminium-silicon alloys, known as EN AC-4XXXX according to the PN-EN 1706:2001 standard. The application of the UMSA device (Universal Metallurgical Simulator and Analyzer) has allowed to determine the liquidus/solidus thermal points of solidified alloy, as well the thermal points, where phase- or eutectic crystallisation occurs. The solidification process was investigated using the metallurgical UMSA simulator connected to recording devices equipped with simulating cooling system. For the alloy microstructure investigation the optical microscope and transmission and scanning electron microscope with EDS equipment were used for evaluation of the chemical composition of the phases occurred in the investigated alloy. Investigation of the interdependences occurred between phase morphology and cooling rate using thermo-analysis has given the main results.




The paper written by L D. Katundi, A. Tosun-Bayraktar, E. Bayraktar and D. Toueix on "Corrosion behaviour of the welded steel sheets used in automotive industry" on a **page 146** characterises the corrosion resistance in the steel sheets (Hot dip galvanizing of steel sheets) used in automotive industry. In fact, corrosion of automotive components by road salt is a widely known problem. The different parts under the car body and the interior surface of body panels suffer easily from the corrosive products deposited on roads and used mainly to melt snow. A comparison in a chemical investigation of the corrosion rate for base metals (without welding) and welded steel is required. Therefore, conformity will be accomplished between the corrosion phenomena in simulated corrosion tests and those in actual cars. The problem is of extreme importance to all academic, scientific, manufacturing, maintenance and industrial societies. The outcome of the proposed study will contribute to the industrial application of ARCELOR-MITTAL. The proposed study will be benefit not only for the car industry and steel makers, but also important for the other industrial applications. The proposed research can be employed in a broad range of applications in oil and natural gas industries. This project will promote multidisciplinary research and cooperation between university and industry. Studies carried out on the vast corroded samples have shown that the pitting corrosion damage and crack initiation sites have began and propagated generally in the HAZ in the welded steel sheets (Tailored welded blanks – TWB).




The paper entitled "Effect of laser treatment on microstructure and properties of cast magnesium alloys" by Ł. Wierzbicki, J. Stabik, G. Wróbel and M. Szczepanik on a **page 163** shows the non-destructive ultrasonic and thermographic testing methods to detect defects in polymeric materials. In an experimental part, subsurface defects were made in specimens of polymeric materials such as PE, PMMA, laminate then experimentally detected and directly displayed in ultrasonic and thermographic images. In this paper the development of a real-time non-invasive technique using pulsed infrared (IR) thermography to measure the temperature of polymer materials is described. In this study 16 specimens were pre-heated during specific time using infrared lamp. After that the specimen's surface temperature was scanned during cooling down process by a thermovision camera, then defects were detected by means of a thermographic images analysis. The second method applied was ultrasonic testing using the pulse-echo technique as a type of non-destructive testing commonly used to find flaws in materials and to measure the objects thickness. Frequencies of 2 to 10 MHz are common but for special purposes other frequencies are used. This paper is unique because it compares two non-destructive testing methods usually used separately to detect defects in polymeric materials.

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