



## **Valchromat Rainbow – Design of coloured MDF with high performance and high aesthetic value for the construction and furniture industries**

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**Keywords:** MDF, coloured MDF, Near Infrared Spectroscopy

### **ABSTRACT**

Project Valchromat Rainbow is promoted by Valbopan, involving as academic partners the Instituto Politécnico de Viseu and the Associação Rede de Competência em Polímeros with the collaboration of the Faculdade de Engenharia da Universidade do Porto and of Resiquímica – Resinas Químicas, S.A., and, as industrial partners, Impocolor and Pladec. The project aims to design a new MDF coloured in the bulk, Valchromat Rainbow with an extended colour palette including pastel colours, to be used in construction, furniture, interior claddings, interior design, shop-fitting or artistic carpentry. The project assumes three fundamental objectives: a) increase of fibre brightness through the use of an innovative opacifying filler based on hollow thermosetting polyester particles and optical and chemical bleachers (chemical functionalisation); b) increase of colour uniformity inter and intra lot and colour matching with another product of the group, Viroc® though the implementation of an on-line colour control system based on Vis-NIR spectroscopy and development of prediction models for the colour of final MDF boards; c) construction of a machining abacus (cutting, drilling, milling, sanding) which will permit end-users to take advantage of the exceptional properties of Valchromat Rainbow, obtaining products with an excellent edge and surface quality. The project bets on a strong interaction between laboratorial development and industrial validation in order to assure the viability of the production and utilization at industrial scale of the solutions found. The project will end with the production of three prototypes of coloured MDF (grey, white and red), followed by the application in a final client (Pladec) of an integrated constructive solution with Viroc®. The project should permit to create the basis for the development, in a near future, of a coloured MDF tailor-made for the end

client, i.e. with a perfect match between the colour of the final MDF and the code colour (e.g. Pantone or RAL) specified by the client.

**Acknowledgement:** This work is funded by Projects: Valchromat Rainbow (SI I&DT - Projects in co-promotion, POCI-01-0247-FEDER-033759) in the scope of Portugal 2020, co-funded by FEDER (Fundo Europeu de Desenvolvimento Regional) under the framework of POCI (Programa Operacional Competitividade e Internacionalização); UID/EQU/00511/2019 - Laboratory for Process Engineering, Environment, Biotechnology and Energy – LEPABE funded by national funds through FCT/MCTES (PIDDAC).

