

PROJETOS DE I&DT EMPRESAS: COVID-19 – I&D Empresas e Infraestruturas de Ensaio e Otimização**Masks to Breathe Safely****Project Name:** Masks4Safety**Project Code:** POCI-01-02B7-FEDER-069468**Main Objective:** To strengthen research, technological development and innovation**Region of Intervention:** North and Centre**Beneficiaries:****Coordinator:** NEUTROPLAST – Indústria de Embalagens Plásticas S.A;**Partners:** CCAB - Centro Clínico Académico Braga, Associação;

VALMET, LDA;

CENTITVC - Centro de Nanotecnologia e Materiais Técnicos, Funcionais e inteligentes.

Approval Date: 21-07-2020**Start Date:** 01-09-2020**End Date:** 03-03-2021**Total Budget:** 207.023,96 €**EU Financial Support: FEDER –** 165.619,16 €**CCAB Budget:** 31.553,50 €**Project Description:**

One of the most effective measures to minimize the spread of COVID-19 is the use of face masks. However, one of the main difficulties that users encounter is the lack of comfort and uncertainty about the protective effectiveness that the mask provides.

The most immediate way to guarantee the effectiveness of the masks is regular replacement. However, given the need for community use, this method raises questions related to the availability of means of protection and the generation of non-recyclable waste. Therefore, it is relevant to develop methods that, indirectly, allow to estimate the useful life of the masks, giving the user the suggestion that it will be necessary to replacement, to maintain a safe level of protection.

Masks4Safety project aims to develop masks with optimized ergonomics and with temperature and humidity sensors integrated in its structure. The measurement of these parameters will allow to evaluate the effectiveness of the protection, generating alerts whenever it is identified that the useful life has been exceeded. The evaluation of parameters such as humidity and temperature, will make it possible to assess the condition of the mask, that is, whether it maintains effective protection. This evaluation will be based on the identification of periods and conditions of use, recording situations that may favor the spread of the virus, such as high temperature or high humidity. A study will also be carried out to optimize the design of the masks, to improve their ergonomics to make them more comfortable, providing greater comfort to the user.

Main Goals:

Optimization of mask ergonomics, contributing to greater comfort during prolonged use.

Integration of temperature and humidity sensors, to assess the effectiveness of protection and, consequently, the useful life.