Chemical resistance evaluation of ELIX ABS grades

Service

ELIX evaluates the chemical resistance of its ABS grades against specific chemical compounds used by our customers in the final application. This allows us to offer the most suitable grade for a specific environment where chemical resistance is required.

Description

Chemical resistance tests are usually performed under conditions of stress and exposure in specific chemical compounds. The combination of both stress and chemical contact creates the most disadvantageous conditions for a plastic.

The most common is the "Environmental Stress Cracking" or ESC test. ELIX Polymers performs this test internally with a wide range of chemical compounds in all ABS, ABS/PC and PC/ABS grades, following the standard ISO 22088-3 (Bent strip method).

This standard establishes a fixed flexural strain on tensile bars, applying the chemical on the top and evaluating the sample regularly for 24 hours (short test) or until the evaluation criterion agreed with the customer has been reached (long test). Other methods used to determine the ESC resistance are the constant tensile load (ISO 22088-2) or the constant strain test (ISO 22088-5).

When requested by our customers, specific chemical compounds in contact with or present in the application environment are tested, in order to ensure good chemical compatibility.

The evaluation criterion is fundamental after the ESC test. At ELIX Polymers we perform a visual inspection and when no cracks are visible, mechanical tensile tests are conducted on the sample.

Standard Application

Home appliances (kitchen robots, washing machines), consumer goods, battery boxes, kitchen profiles, mower parts, automotive interiors, etc...

Objectives

The whole analysis is an ELIX service that will help establish a comparison of the resistance of our different grades against a particular chemical compound and provide a better understanding of the effect of the chemical compound on the final application.

Features

Chemical compliance letter available.

ESC test results (Environmental Stress Cracking, ISO 22088-3) available for several chemical compounds.

On request, specific chemical compounds can be analysed.

Evaluation consisting of a visual inspection and mechanical tests.

Benefits

Compatibility of ELIX ABS grades with the chemicals most often used in ABS applications.

Knowledge of the chemical compound effect on the final application under the combination of stress and chemical attack.

Selection of the best grade when chemical resistance against a specific substance is required.