SIPA TEST LAB IS SUPER-SPECIFIED

PET preform and container production specialist SIPA has comprehensive laboratory facilities that enable it to carry out a comprehensive range of tests, not only on all shapes and sizes of preforms and containers (including jars, handled containers and beer kegs), but also on caps, closures and separate handles, plus all the materials they are made from.
Tests on preforms and containers include numerous measurements for dimensional accuracy, mechanical, physical and chemical tests, several functional tests of which hot-fill distortion, stress cracking resistance, drop and leakage tests, as well as a host of other more exotic.
As far as materials characterization is concerned, SIPA Lab has competence not only in PET, but also polyolefins (PP, HDPE), polystyrene, and such biopolymers as PLA and PHA.
For CSD application, the Lab is equipped with a small filling line to pressurize the bottles and replicate industrial process.

VERSATILE TESTS

One particularly versatile tool that SIPA Lab has at its disposal is FT-IR spectrometer.
This can be used to determine the loss of CO_2 from bottles, and in addition it can characterize a material by determining the functional groups it contains, aiding to identify possible additives and analyzing chemical compatibility.
The FT-IR equipment can be used in an ATR (Attenuated Total Reflection) configuration, which enables samples to be examined directly without any special preparation to determine the characteristics of the surface layer of a product with near-infrared radiation.
Tests for non-standard containers
SIPA Lab is equipped with instruments, some developed internally, for the characterization of non standard containers (such as large kegs for CSD and beer, as well as large containers for dispenser)
Among other properties, Handle resistance, top load and burst strength can be carried out.

OUT-OF-THE ORDINARY TESTS

Among several dedicated tests that SIPA Lab carries out is the measurement of acetaldehyde levels with gas chromatography (using the ground parison method), and

the measurement of moisture levels in granules, preform or container using a Karl Fischer titrator.
The laboratory is even equipped with a UV-visible spectrophotometer. Another facility worth noting in the SIPA lab is a small pasteurizer with which technicians can simulate sterilization and pasteurization cycles. The use of datalogger helps to monitor the temperature and pressure of the content during the process. An unique instrument that has been built internally used principally for light-weighting research projects permits to determine the falling angle of a bottle and to observe the behaviour of the bottle during pouring.

CO_2 LOSS, O_2 GAIN

Among the tests that the company regularly carries out in conformance the normal protocols of the major players in the market, there are some rather particular ones that can be used to determine product shelf life. “We are able to determine the loss of carbon dioxide and, in the case of products susceptible to oxidation, oxygen uptake, using various techniques, depending on the protocols of various clients,” says Roberto De Luca at SIPA, who notes that the company is a certified laboratory for major players.
Characterizing barrier performance
SIPA Lab is able to characterize existing containers and develop new barrier packaging using oxygen scavengers, PET/PA coinjection, or special coatings.
It uses a variety of tools to determine the mechanical and physical characteristics of coatings, including various devices to test for hardness, adhesion, abrasion resistance, and so on.