Case Study

Automotive Analytical Solutions in the Laboratory



Plastic Moisture Content Easily Determined with METTLER TOLEDO Titration System

JSC AutoVaz is the largest passenger cars manufacturer in Russia which produces more than 700,000 cars per year. To control the moisture content of plastic, JSC AutoVaz's raw plastics lab chooses METTLER TOLEDO's solutions to replace the old analysis method which greatly increases their efficiency and productivity.

It's All About Moisture

Plastic parts are widely used in the automotive industry, therefore quality control at each step of plastics processing is very important to a vehicle's overall safety and should be carried out accurately and thoroughly. AutoVaz's raw material lab performs various plastics analysis: melt flow index, yield strength, tensile strength, flexibility modulus, shrinkage, density, melting point and moisture content. Moisture content in raw material is one of the most important parameters for plastic processing.

AVTOVAZ

JSC AutoVaz

Car manufacturer Quality control of polymer Water content determination of plastic with Coulometric KF Titrator and drying oven





DO308 Karl Fischer drying oven





DL32 coulometric Karl Fischer titrator

Excessive water content in raw polymer pellets used for the production of injection molded parts may lead to the formation of internal or surface pores. This directly influences the strength and appearance of parts such as control panels, door coatings, bumpers etc. This is why AutoVaz tests each batch of polypropylene, polycarbonate/ABS compounds, ABS plastics and polyamide used for production. AutoVaz used the drying oven method to determine the moisture content of polymer pellets. They found that the analysis took far too much time (up to 3 hours for each sample) and that the reproducibility of ±0.01 % MC (moisture content) was not sufficient to satisfy increasing quality control requirements. This lead the AutoVaz raw plastics lab to search for a newer, more precise and more efficient analysis method.

Professional Support Counts

METTLER TOLEDO offered a titration system incorporating a DL32 coulometric Karl Fischer Titrator and a DO308 drying oven. "We purchased a DL32 equipped with the DO308 for polymer granule moisture analysis almost a year ago from METTLER TOLEDO", Mrs. Tatyana Kozelskaya, head of raw plastics laboratory, explains- "the service engineer from MET-TLER TOLEDO installed the system and trained our lab technicians to perform the analysis. It was really easy to familiarize ourselves with the instrument and to start analyzing all our samples on daily basis. Thanks to the Russian language menu and intuitive interface of the DL32, startup time was really short."

"We weigh 5 g of plastic sample with METTLER TOLEDO'S AE200-S Analytical Balance directly into the sample boat of the DO308. We then put this boat into the DO308 and start the analysis. Moisture analysis of plastic pellets using the DL32 and DO308 takes only 15 minutes now. This equates to a huge time saving and higher sample throughput." High test result reproducibility greatly assists AutoVaz in the quality control of each batch of polymer. This also means less raw material wastage and faster reaction times to necessary production corrections if necessary.

"METTLER TOLEDO offers really efficient and reliable systems for analysis of moisture in plastics. High level services provided by METTLER TOLEDO ensure us continuous problem-free system operation." Mrs. Kozelskaya concludes.

For more information on the successor of AE200-S, the XS204 Excellence analytical balance, go to:

www.mt.com/xs-analytical www.mt.com/Karl-Fischer

Mettler-Toledo AG

Laboratory Division Im Langacher CH-8606 Greifensee, Switzerland

Subject to technical changes. © Mettler-Toledo AG 01/11 Printed in Switzerland Global MarCom Switzerland