

Fire and flame - Measuring the horizontal burning rate ... and it burns, burns, burns...

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The problem:

Car producers (OEM) have to assure that materials used in cars are incombustible or are only burning at a defined velocity. To ensure these properties the testing of the horizontal burning rate is very often part of automotive approval tests.

Requirements of car producers:

Common technical standards are for example ISO 3795, DIN 75200, DBL 5307, GMW 3232 and GB 8410. These standards base in general on the US standard specification FMVSS 302. The differences between the standards can be found in details of experiment evaluation, the allowed minimum sample size or in the pre-conditioning and ageing of the sample. But the type and size of the horizontal test chamber (figure 2) is always the same.

Industries (A-Z)

Automotive
Paints and Coatings
Plastics Processing
Textile

Objectives (A-Z)

Automotive approval tests

Materials (A-Z)

All plastics/organic
materials for automotive
interior parts

Analytical method (A-Z)

Horizontal flammability test

Related topics

Vertical flammability test
Heat wire method



Fig. 1: Performance of burning test.



Fig. 2: Burning chamber and
automatic control unit.



Fig. 3: Performance of burning test.

The solution:

Performance of burning tests

To start the horizontal burning test the sample is fired with a defined pilot flame and while a well-defined air stream velocity is applied the propagation of the flame front is observed (figure 1 and 3). The burning distance and the time of the burning process is evaluated. The intensity of flame formation is not crucial. In general the requirement of the burning test is fulfilled, if the material does not ignite or extinguishes by itself or the burning rate is below 100 mm/min. The individual specifications of the OEMs have to be regarded in this case. Even the material shown in fig. 3 passed the burning test, because its burning rate was still below 100 mm/min!

Pre-treatment of samples before burning tests

Beside the classical burning test some standards like the VW TL 1010 ask for a pre-conditioning, sometimes for an artificial ageing of the sample prior to the test. ASO is of course sufficiently equipped for such eventualities.

WEB V 100 certification of ASO burning test by Daimler AG

Beside the ISO 17025 accreditation the Daimler AG demands an own audit for definite tests related to method, equipment and handling in the lab. This was checked during a regular laboratory audit by Daimler AG. The Analytik Service Obernburg GmbH owns such a lab-approval. Therefore it is assured that the lab results find full acceptance at Daimler AG.

Do you like more burning tests?

In cooperation with the SKZ-group we can offer you further variations of the burning tests, for example the vertical test acc. to DIN EN ISO 9773, the test with heating wire acc. to DIN EN 60695-2-11, edge and surface ignition acc. to DIN 53438-2 and DIN 53438-3.

The advantage:

In addition to the performance of the burning tests itself, ASO also offers consulting services. The accreditation according to ISO 17025, the lab-approval by Daimler AG and the successful participation on round robin tests ensure the unlimited acceptance of our results.

Interested?

The analytic group of the Analytik Service Obernburg GmbH is ready to answer your questions.

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Legal Notice

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