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## Fogging Test



### Determination of the Fogging Characteristics of Trim Materials in the Interior of Automobiles

High surface and interior temperatures cause the polymers, textiles and natural materials used in automotive interiors to outgas volatile and semi-volatile organic compounds (VOC and SVOC) at accelerated rate. The SVOCs can condense onto the cooler surface of the windshield potentially creating a visibility and safety problem for the driver.

The purpose of the fogging test is to assist manufacturers of materials used in the interior of vehicles and the companies that use the products in identifying and developing products

that outgas SVOCs at a reduced rate. The fogging test procedure as described in DIN EN ISO 75201 helps to recreate automotive interior outgassing in a timely, measurable and repeatable way. For users working to according to different norms or SOPs the software also offers a workflow without checking the balance resolution and with user defined permissible weight difference between the foils.

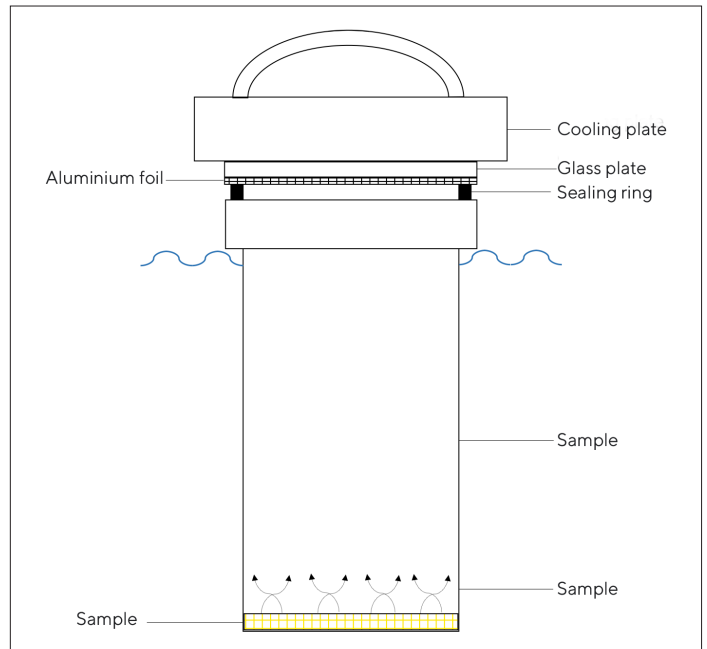
**✕ Select test procedure**

Acc. to DIN 75201:2011

Other norms/SOPs

DIN EN ISO 75201 describes two different workflows for conducting the fogging test that are shared by most other standards. The reflectometric method (method A) determines the fogging value by measuring the light scattering caused by the collected fog while the gravimetric test (method B) measures the mass of the fog. For the reflectometric method no balances are involved in the test procedure while for the gravimetric test a balance with a scale division of 0.01 mg is defined as measurement device in DIN EN ISO 75201.

For the gravimetric test an 80 mm diameter sample of leather, plastic films and plastic or rubber coated cloth is cut off the material and placed onto the bottom of a glass beaker. The beaker is inserted in a special heating bath and covered by an aluminum foil disk. In a typical water bath used for the fogging test six samples can be inserted of which one sample is reserved for a control experiment using diisodecyl phthalate (DIDP).



**< Select Sample ID** 🗑️ 🔍 +

DIDP control	Init: 1, Back: 1
Fog Test	Init: 4, Back: 2

The initial weight of the aluminum foil disk is determined before the test. Then, for a period of 16h the sample is in the beaker heated to 100°C while the aluminum foil disk is cooled by a connected chiller to 21°C.

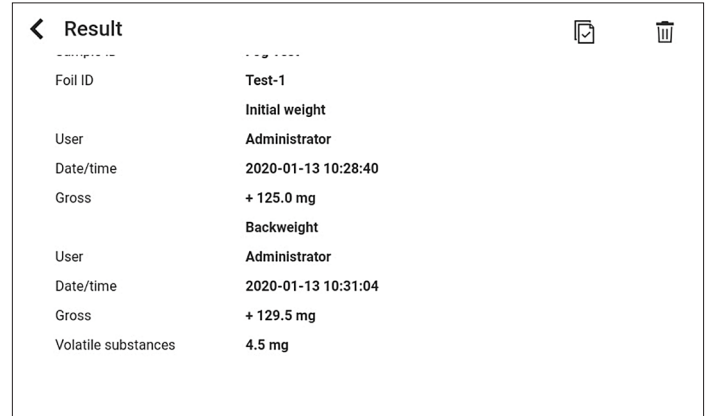
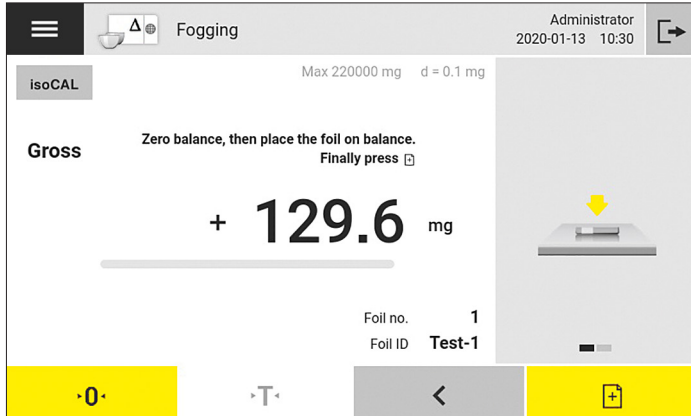
The heat causes the sample in the beaker to release SVOC gasses that condense on the cooled aluminum foil disk creating a fog that has a measurable condensate. The back weight of the aluminum foil disk is measured after the incubation is finished and foils have been stored for 3.5 h to 4 h in a desiccator.

The amount of fogging condensate is determined by subtracting the aluminum foil initial weight from the back weight ( $G_j = G_1 - G_0$ ) and the degree of divergence  $v_{\%}$  is calculated. According to DIN EN ISO 75201 two samples are tested but if the results deviate by more than 20% for measured values > 0.5 mg, based on the mean value, a total of 4 samples must be tested.

The DIDP control sample is incubated in parallel in the water bath and the initial and back weight of the aluminum foil disk measured. On the beaker the expected weight difference (control value) is printed and according to DIN EN ISO 75201 the measured value must not differ by more than  $\pm 0.25$  mg from the control value.

If the measured condensate weight for the DIDP control sample is higher than allowed the measurement cannot be used to evaluate the fogging test results.

Using the fogging test QApp samples can be invalidated if a test is failed due to for example droplet or grease generation or inhomogeneous vaporization. The software measures and checks the result of the DIDP control sample, automatically calculates the result for each sample and creates a comprehensive report.



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