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## **BRIGON Diesel Tester Operating instructions**



## 1. Introduction

The German technical rules for dangerous substances (TRGS) describe the standard of technical safety, occupational medicine, hygienic as well as work scientific demands for the dangerous substances regarding their handling and usage.

The TRGS 554 are applied to the working areas where emissions from diesel motors can penetrate the air around the working place.

Diesel motor emissions are cancer-causing dangerous substances according to the §35 of German GefStoffV.

Diesel motor emissions are not produced: they appear as a reaction product by operating of diesel motors and can be released in the working area.

That is why the working process has to be arranged so, that diesel motor emissions will not be released in the air, as far as the state of the equipment permits this. That means, it has to be considered if the forthcoming tasks and operations can be maintained through other actuating mechanisms or techniques.

If after this consideration diesel motors will be used further, there must be taken measures to reduce diesel motor emissions. For example, using of low emission diesel motors and furthermore using of sulphur-free fuel, regular maintenance and using of the particle filters so far the state of equipment permits this.

The maintenance concept within TRGS 554 prescribes that emissions of the diesel motors which are regularly operated in completely or partially closed working areas has to be controlled regularly.

For the evaluation of the motor state the smoke degree or turbidity degree must be determined by the measurements from undiluted exhaust fumes of this motor in the reproducible operation condition, for example in idle running or in a free acceleration with the help of the competent device.

In case the motor dispose of the built-in diesel particle filter, smoke or turbidity degree respectively should be determined before and after the built-in filter.

## 2. Measuring method

BRIGON Diesel Tester is suitable and admitted for checking the diesel motor emissions with the smoking degree. The method consists in sucking of the fixed amount of exhaust fumes within the fixed time by an appropriate pump, for example BRIGON Diesel Tester, through the fitting filter paper.

A smut spot will appear on the filter paper. This smut spot should be compared with the graded spots of the scale, then the smoke degree can be determined. In case the emission measurements are taken on the diesel motors, which regularly in completely or partially closed working areas, the evaluation of the measurements ought to be carried out with the electronic optic densitometer, for example VIPTTEST-K, as only in this case the resolution of 0,1 smoke degree can be achieved.

## 3. Measuring process

The measurements must always be taken from undiluted exhaust fumes in the reproducible operation condition, that means in idle running or in a free acceleration of the motor.

Insert the probe into the exhaust pipe and screw the holder in. Lay the clean stripe of the filter paper into the slot in the pump head and pull the knurl screwing by the hand. Press the tension spring until the strike then.

To take a measurement release the piston. Through this action the spring around the piston will take out the piston stroke automatically. After that lay the smut spot on the filter paper under the scale for comparison and value the measurement or use VIPTTEST-K for evaluation. The description of the evaluation process should be enclosed with every VIPTTEST-K device.

If the measurement values exceed the reference values for the smoke degree by more than 1,0 for measurements before the diesel particle filter or by 0,5 for measurements after the diesel particle filter respectively, further inspections and adjustments should be held apart from the usual maintenance procedures in accordance with the specifications of the motor manufacturer.