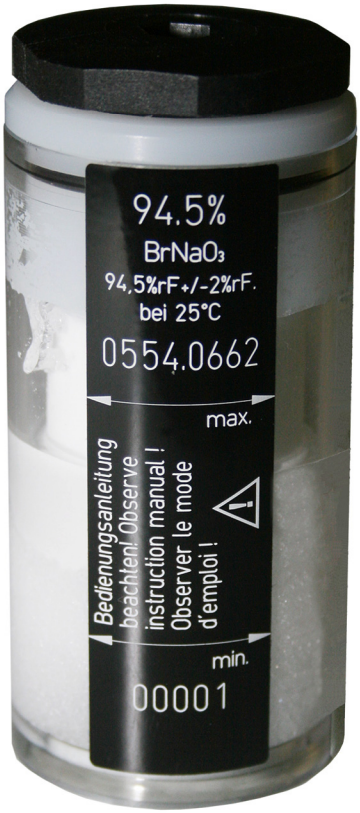
Check and adjustment salt for high humidity

Instruction manual



1 Contents

2 Safety and the environment

2.1. About this document

Use

> Please read this documentation through carefully and familiarize yourself with the product before putting it to use. Pay particular attention to the safety instructions and warning advice in order to prevent injuries and damage to the products.

> Keep this document to hand so that you can refer to it when necessary.

> Hand this documentation on to any subsequent users of the product.

Warnings

Always pay attention to information that is marked by the following warnings with warning pictograms. Implement the specified precautionary measures.

Representation	Explanation
WARNING	Indicates potential serious injuries

Symbols and writing standards

Representation	Explanation
i	Note: Basic or further information.
1. ... 2. ...	Action: more steps, the sequence must be followed.
> ...	Action: a step or an optional step.
- ...	Result of an action.

2.2. Ensure safety

> The sodium bromate ($NaBrO_3$) is hazardous to health. Avoid contact with the eyes and skin. Never store the salt near children (risk of ingestion!)

> Fire hazard! Never use or store the testing container near flammable substances.

> Use of the check and adjustment salt for high humidity is not permitted in an explosive area. An adjustment with the check and adjustment salt for high humidity is only allowed outside of the explosive area.

> Do not store the testing container together with solvents. Do not use any desiccants.

> Only operate the product properly, for its intended purpose and within the parameters specified in the technical data. Do not use any force.

2.3. Safety data sheet

Composition/specifications on components

CAS no.	7789-38-0
Danger symbol	O, X
EC number	232-160-4
Total formula	$NaBrO_3$

2.4. Protecting the environment

Dispose of check and adjustment salt

WARNING

Serious skin and/or eye injuries are possible due to direct contact with the salt solution (sodium bromate)!

> Avoid contact with skin and eyes.

> Never store testing container near children.

> Dispose of check and adjustment salt in the laboratory as with inorganic salt solutions.

Dispose of testing container

> Thoroughly rinse testing container with water and dispose of in residential waste.

3 Specifications

3.1. Use

The check and adjustment salt for high humidity (order no.: 0554.0662) is used for the check and adjustment of the humidity probe 6614 in connection with the testo 6681 transmitter.

At an operating temperature between 20 °C - 30 °C, an air mixture is created with a defined relative humidity using the salt solution.

Check

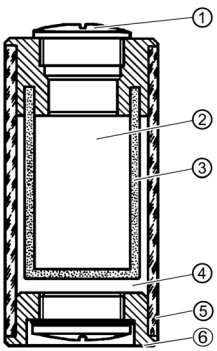
The high-humidity probe can be checked using a saturated $NaBrO_3$ salt solution. During the check measurement, the transmitter must display a value of 94.5 % RH ± 2.5 % RH. The check of the high-humidity probes should be performed at regular intervals. The exact frequency depends on the process conditions.

Adjustment

The adjustment should only be performed if the result of the check measurement significantly deviates from the nominal value, e.g. outside the tolerance range ± 2.5 % RH. Generally only a 1-point adjustment can be performed with this measuring method. In the process, you must note that only the accuracy in the area of the adjustment point is improved. This is logical if the working area is near the adjustment point.

- With testo 6681 transmitter the 1-point adjustment can be performed both via the control keys and via the P2A software. For a more detailed procedure with the 1-point adjustment, refer to the instruction manual for testo 6681.
- All humidity probes are subject to an adjustment before delivery. An adjustment performed on site for newly delivered probes is unnecessary as an adjustment possibly limits the accuracy.
- Probes that are subject to a special calibration may not be adjusted on site according to ISO 9001.

3.2. Functional principle



The testing container is designed with two walls. The inner wall is a diaphragm ③ (wall permeable to water vapour, porous). The outer wall ⑤ consists of transparent plastic. Between the two walls is the saturated salt solution ④. The water vapour penetrates the diaphragm ③ into the interior ② of the testing container and there forms an air mixture with a particular water content.

This corresponds to the defined relative humidity of 94.5 % RH, which is used for the check or the adjustment.

A salt solution remains saturated when enough salt crystals are present (salt crystals above Min. marking, see testing container).

In the event of an unsaturated salt solution (only liquid remains visible), a defined relative humidity **cannot** be ensured.

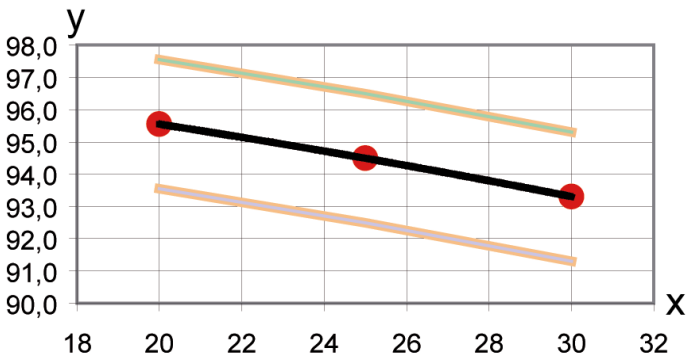
In the temperature range between 20 °C - 30 °C, the relative humidity of the $NaBrO_3$ solution is virtually temperature-independent.

The independence of temperature of the testing container is only valid if no temperature gradient exists between probe and testing container. Testing containers can be used without limitation irrespective of position and in proper condition.

3.3. Technical data

Characteristic	Values
Contents of the testing container and deviation	$NaBrO_3$ solution = 94.5 % RH ± 2.5 % RH
Nominal temperature	+ 25.0 °C
Permissible operating temperature	+20.0 °C to +30.0 °C
Permissible storage and transport temperature	0 °C to +40.0 °C
Warranty	6 months

Diagram Testo testing container 20°C–30°C



x= temperature °C

y= relative humidity %RH

4 Using the product

4.1. Preparing check/adjustment

Before the check or an adjustment, the probes and the testing container must be adjusted in a constant temperature range (between 20 °C - 30 °C) for approx. 12 hours.

> Before every use, check the testing container, see Check testing container page 11.

4.2. Performing check/adjustment

WARNING

Serious skin and/or eye injuries are possible due to direct contact with the salt solution (sodium bromate)!

> Avoid contact with skin and eyes.

> Never store testing container near children.

General notes

> Immediately remove and wash contaminated clothing.

Following contact with skin

> Upon contact with the skin, immediately wash the affected spot with water.

Following contact with eyes

> Upon contact with the eyes, flush thoroughly with lots of water and with the eyelid open. Consult a doctor.

Following ingestion

> Upon ingesting, drink a lot of water. Only allow the affected person to vomit under their own power and when fully conscious. Immediately consult a doctor.

- For the check, the equalization period with the probe inserted into the testing container lasts 30 minutes.
- When adjusting, an equalization period of at least an hour is recommended.
- Avoid all interfering influences from outside (direct irradiation, draught etc.).

Important!

- The temperature of the testing container with the humidity probe and of the external temperature probe must be the same.
- During the measurement, the testing container should be left in the packaging so that the temperature influences can be reduced and avoided.

Open and close testing container

1. Shake the testing container briefly before the adjustment.
2. Open the testing container: Unscrew the cover ① of the testing container.

The testing container may only be open briefly. If the ambient air mixes with the air mixture inside of the testing container, the defined humidity must first be generated after screwing in or inserting a probe.

3. To retain the functionality as long as possible: Clean and dry sealing surface after use. Close testing container airtight!

Immerse humidity probe in testing container

1. Unscrew the cover ① of the testing container.
2. Carefully immerse humidity probe with the filter cap. Ensure that a distance of at least 1 mm exists between the probe and the bottom of the test chamber.
3. Temperature probe should be placed between the testing container and insulation.

The filter cap must be completely inside of the testing container! The additional temperature probe is not immersed; it must remain outside of the testing container.

4. Observe equalization period, see Preparing check/adjustment page 9 and Performing check/adjustment page 9.

5 Maintaining the product

Check testing container

As a result of the ambient conditions, the fill level of the salt solution may deviate from the ideal status. A Min./Max. marking is present on the testing container for simple checking of the ideal fill level. The liquid level in the testing container decreases over time due to evaporation.

The functionality of the testing container is ensured if:

- sufficient salt crystals exist in the saturated solution (salt crystals must be between Min. and Max. marking).
- the salt is covered by the liquid.
- the liquid level is between the Min. and Max. marking.
- there is **no** liquid in the test chamber.

> If the functionality of the testing chamber is no longer ensured: Replace testing container and dispose of it in an environmentally-compatible manner, see Dispose of testing container and Dispose of check and adjustment salt page 5.

6 Tips and assistance

6.1. Accessories and spare parts

Description	Article no.
Check and adjustment salt for high humidity	0554.0662