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	Reasons for decolourization of GKE chemical indicators before and after sterilization	Created	12.11.2002	RM
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Under normal storage conditions (20 °C, approx. 60 % relative humidity), the color change of GKE steam indicators is stable for many years as stable black pigments are formed upon sterilization. The color change of indicators for low-temperature sterilization processes is formed upon a designed special chemical reaction and is also stable when correct storage conditions are kept according to the directions for use (DFU).

The presence of certain reactive chemicals or their gases may cause a change of the indicator colour. For example the presence of hydrogen peroxide (H₂O₂, e.g. coming from treated indicators nearby) can cause an oxidation of the black pigment and thus a reduction of a black coloration to brown and yellow and then to decolorization (e.g. of chemical indicators for steam). H₂O₂ gas also can change the color of indicators of which's color had been formed by the special chemical reaction upon low-temperature sterilization processes. From goods sterilized with H₂O₂ or liquid H₂O₂/ H₂O storage containers, very small non-smellable H₂O₂ concentrations over a longer period are sufficient for the decolorization. The above mentioned reactions are exemplary and are not restricted to H₂O₂ but also to other chemicals and their vapors such as cleaning agents, disinfectants, varnishes, etc.

Furthermore, storage of chemical indicators under humid environmental conditions must be avoided. High amounts of moisture, for example as a result of insufficient drying of the sterilized goods or humid weather conditions, can in seldom cases lead to chemicals being dissolved out of the packaging materials slowly changing the colour of a chemical indicator when getting in contact with them.

Sterilized indicators documented in books may cause the same problem, when documentation books are stored in humid environment.

Guidelines for the storage of chemical indicators can be found in the directions for use and the Technical Information TI 730-033 "Storage conditions for GKE products before and after use".