

■ Reaction principles and interferences

If sample air contains substances similar to the target substance, they will similarly react to the reagent(s) in the detector tube, affecting tube indication. These substances are called interfering substances or interferences. Influences of interfering substances vary depending on the reaction type of the detector tube. Gastec detector tubes employ three types of reaction principles:

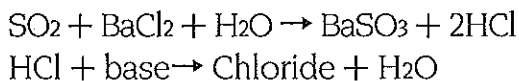
- ① Direct reaction in which the substance to be measured directly reacts with a detecting reagent.

(Example) No. 1L Carbon Monoxide detector tube :



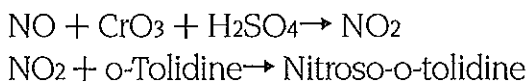
- ② Compound reaction in which the substance instantaneously reacts with several detecting reagents within the analyser layer.

(Example) No. 5Lb Sulphur Dioxide detector tube :



- ③ Two-step reaction in which the substance is oxidised in the pretreatment layer before reacting with the detecting reagent in the analyser layer.

(Example) No. 11L Nitrogen Oxides detector tube :



● Interferences in direct reaction type detector tubes

- ① The reagent (s) will also react to interferences, giving a higher indication. An example of such interference is hydrogen sulphide to the Hydrogen Cyanide detector tube (No.12L).
- ② If a pH indicator is contained in the tube, acids and bases will react as interferences, giving a higher indication. An example of such interference is hydrogen chloride to the Hydrogen Cyanide detector tube (No.12L) .

● Interference in compound reaction type detector tubes

If the substance generated by the primary reaction is the same as the target substance to be measured, a higher indication will be given. An example of such interference is tetrachloroethylene to the Trichloroethylene detector tube (No.132HH).

● Interference in two-step reaction type detector tubes

As the oxidiser (pretreatment reagent) is also consumed by interferences, its ability to oxidise the target substance will be diminished, giving a lower indication. An example of such interference is aromatic hydrocarbons to the Trichloroethylene detector tube (No.132L).