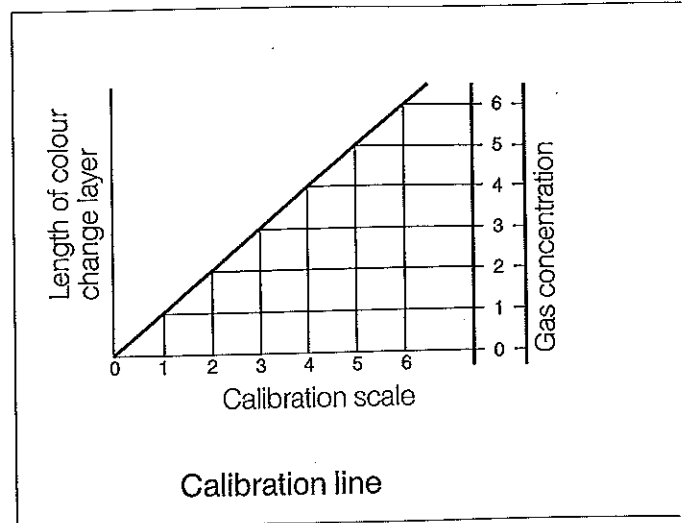


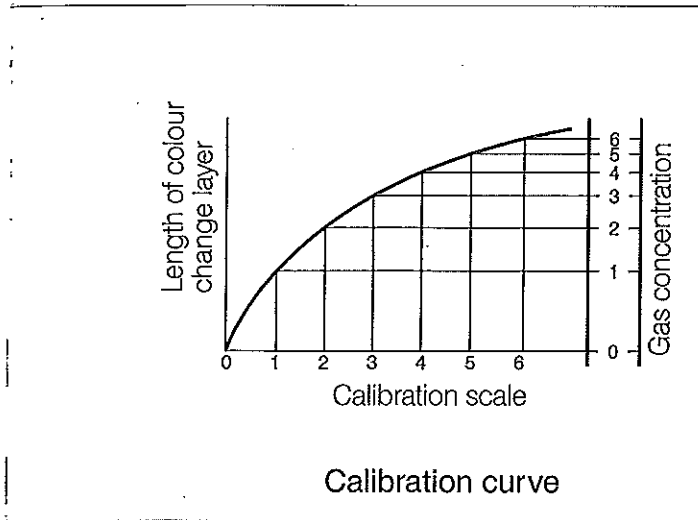
■ Quality assurance program at Gastec

To assure high performance, and high quality of its detector tubes, Gastec established a severe and comprehensive quality assurance program involving the planning and development departments through the production and inspection departments. Each department has its own standard, and only such products that have met all these standards are shipped. The four major aspects of this program are as follows :

- **Careful planning and development**
The specifications of each detector tube are studied and discussed carefully from various view points, including the substance to be measured, measuring range and purpose or presumed measurement environments. In development, vigorous efforts are made to produce a clear demarcation of colour change and to expand the measuring range of a detector tube as wide as possible.



- **Enhanced reagent stability**
The detector tube method utilizes a chemical reaction of reagents with the target substance. The stability of reagents may determine the shelf life of the detector tubes. At Gastec, we have been endeavouring toward research and development of reagents with greater stability and the improvement of quality of conventional reagents. At the present time, many Gastec detector tubes are assured of shelf life of 3 years.



- Improved detector tube accuracy**
 Due to the advancement of production technology, the accuracy of detector tubes has been greatly improved. Today, important factors that may affect the accuracy of detector tubes include the fluctuation of inner diameters of detector tubes and that of the resistances of the filling reagents and packing material to the sample flow. At Gastec, they are strictly controlled to the tightest tolerance assuring a very high accuracy.

- Accurate calibration gas generation**
 The calibration scale for detector tubes of the same production lot is determined by sampling a standard gas (whose concentration is precisely defined) with sample tubes of the lot. The relationships between the concentration and the length of colour change layer are shown above. This calibration gas is also used for final inspection of the detector tubes to warrant their quality. Therefore, the accuracy of the calibration gas determines the accuracy of the detector tubes. Gastec has developed high precision calibration gas generators called Gastec Permeaters, which have gained a high reputation in the industry. The Gastec Permeaters will be described on page 6-2.