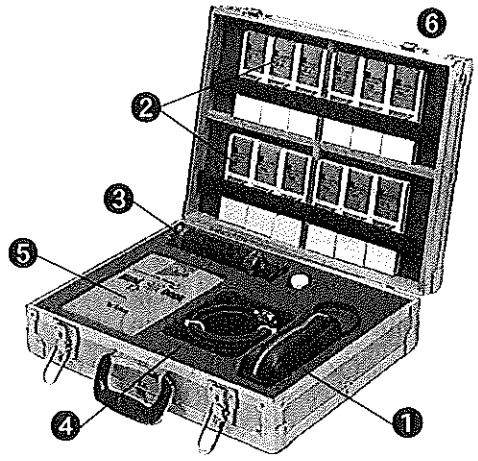
Toxic Gas Detection System (Gastec TG-1 System)

The prime importance in the case of emergency response to chemical spills is to quickly determine the gases and their concentrations. With the Gastec TG-1 System, you can do this accurately, easily and quickly on the site, using 12 kinds of Gastec detector tubes and the Model GV-100 Gas Sampling Pump. As the substances to be measured are hazardous, adequate precautions should be taken to ensure safety. For details, see the instruction sheet provided with this system.

■Gastec TG-1 System



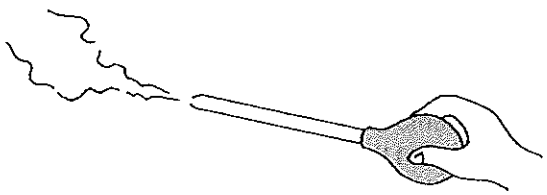
- Features
  - Fast and easy determination of pollutants
  - Portable, with no special requirements for measurement sites or meteorological conditions.

■Gastec TG-1 System configuration

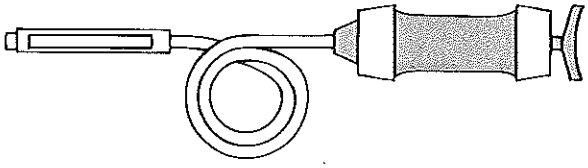
Components	Quantity	Remarks
No.500 Smoke Tester Kit (Photo ❶)	1	To visually confirm the air current direction at the measurement site. (See page 6-8)
Detector tubes (Photo ❷)	12 kinds (10 tubes/kind)	No.107 (Polytec I), Nos.141, 128, 151L, 135, 111L, 4LL, 1L, 14L, 3La, 12L, 8La
Model GV-100 Gas Sampling Pump (Photo ❸)	1	With 3 rubber inlets, 1 lubricant
No.350A Extension Hose (Photo ❹)	1	5m (16.4ft) long. (See page 1-11)
Rubber connectors	2	Connect No.4LL with No.1L
Instruction sheet	1	
Handbook (Photo ❺)	1	
Carrying case (Photo ❻)	1	
Dimensions & weight (whole kit)		465mm(W) × 138mm(D) × 373mm(H), 5kg (18.3in × 5.4in × 14.6in, 11lb)

■Measurement procedure

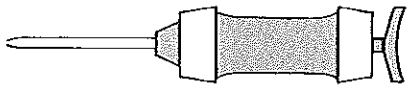
① Confirm the air current direction at the measurement site by using the No.500 Smoke Tester Kit. For the No.500 Air Smoke Tester Kit, see page 6-8.



② Connect the No.350A Extension Hose to the Model GV-100 Gas Sampling Pump, if necessary.

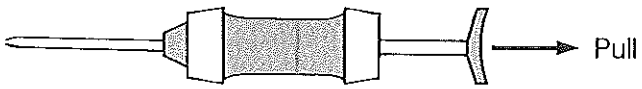


③ Break off both ends of a Polytec I (No.107) and connect the tube to the Pump, or to the end of the Extension Hose if the extension hose is used.



④ Pull out the handle of the Pump, wait for the predetermined sampling time, and examine the tube for colour change.

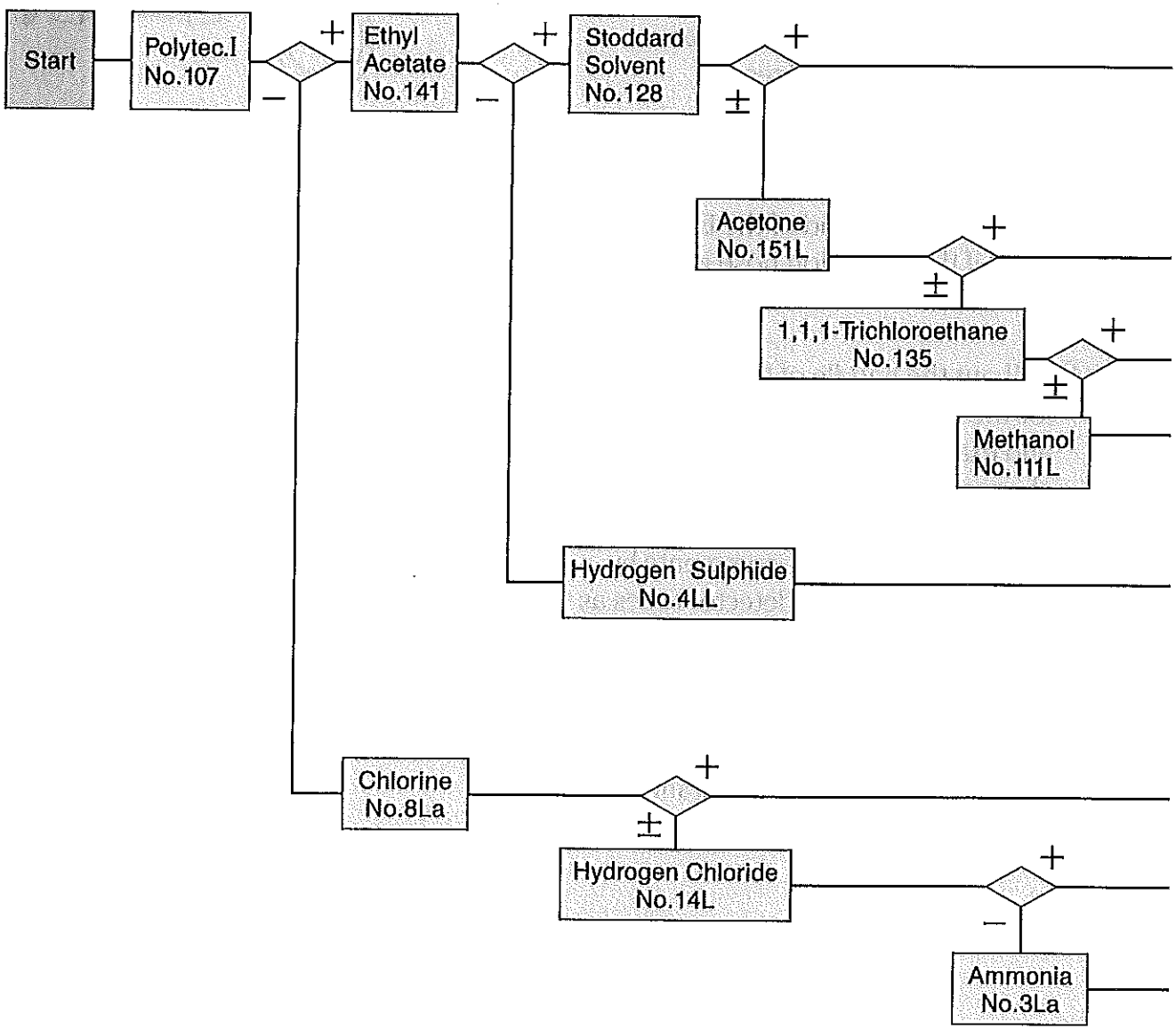
⑤ Proceed with the measurements by using all 12 kinds of detector tubes as shown in the following toxic gas determination flowchart.

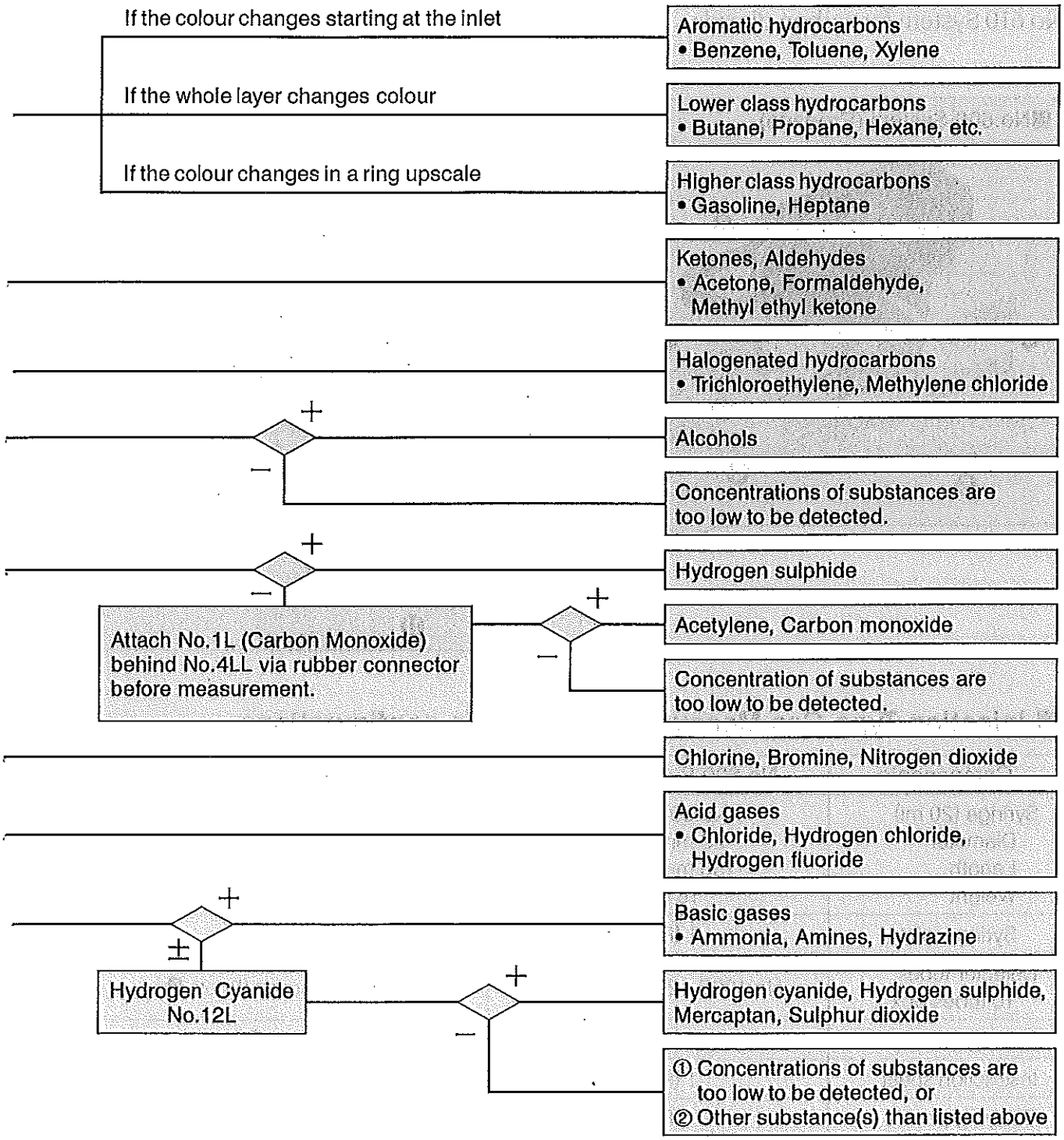


⑥ Finally, determine the pollutants from the measurement results.

Toxic gas detection flowchart

◇ represents the decision whether or not the colour change is observed.
+ shows that this route is to be taken only when the colour change is observed.
– shows that this route is to be taken only when no colour change is observed.
± shows that this route is to be taken both when the colour change is observed and when no colour change is observed.




If the colour changes starting at the inlet
If the whole layer changes colour
If the colour changes in a ring upscale
Aromatic hydrocarbons
• Benzene, Toluene, Xylene
Lower class hydrocarbons
• Butane, Propane, Hexane, etc.
Higher class hydrocarbons
• Gasoline, Heptane
Ketones, Aldehydes
• Acetone, Formaldehyde, Methyl ethyl ketone
Halogenated hydrocarbons
• Trichloroethylene, Methylene chloride
+
−
Alcohols
Concentrations of substances are too low to be detected.
+
−
Hydrogen sulphide
Attach No.1L (Carbon Monoxide) behind No.4LL via rubber connector before measurement.
+
−
Acetylene, Carbon monoxide
Concentration of substances are too low to be detected.
Chlorine, Bromine, Nitrogen dioxide
Acid gases
• Chloride, Hydrogen chloride, Hydrogen fluoride
+
±
Basic gases
• Ammonia, Amines, Hydrazine
Hydrogen Cyanide No.12L
+
−
Hydrogen cyanide, Hydrogen sulphide, Mercaptan, Sulphur dioxide
① Concentrations of substances are too low to be detected, or
② Other substance(s) than listed above