MONITORING & CONTROL FOR YOUR ENVIRONMENT

Polytec Tubes

Whereas the standard Gastec detector tubes provide quantitative information of concentrations of known target gases, Gastec polytec tubes allow multiple unknown substances to be determined simultaneously from a sample.

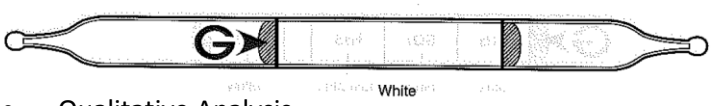
Polytec tubes are used in the same way as standard detector tubes. However, they are unique, each having between 1 and 7 reaction layers within the glass tube that will react to specific gases. When a volume of air is sampled using the Gastec pump, the colours of the polytec tubes layers change uniquely to the content of the sample.

Types of Polytec Tubes

Gas or vapour to be measured	Tube no & Name		No. Of pump strokes	Shelf life (year)
NH_3, SO_2, H_2S, CO, NO_2, R.SH	25	Polytec tube-2	1	2
NH_3, H_2S, CnHm	26	Polytec tube-3	1	2
NH_3, HCl, HvS, NO_2, Cl_2, CO, CO_2	27	Polytec tube-4	1	2*
Unknown Gases	107	Polytec tube-1	3	3

***Store tubes in Refrigerator**

Polytec I (Tube 107)



- Qualitative Analysis
- Sampling time: 1 minute for 1 pump stroke (100ml)
- Shelf life up to 3 years from point of manufacture
- Reaction principle: Substance $+I_2O_5+H_2S_2O_7 \rightarrow I_2$

Polytec I (GAS107)		
Substance	Conentration	Colour change from white to
Carbon Disulphide	≥1ppm	Green
Hydrogen Sulphide	≥1ppm	Green
Carbon Monoxide	≥10ppm	Green or Brown
Acetone	≥1000ppm	Brown or Green
Acetylene	≥10ppm	Brown or Green
Ethylene	≥70ppm	Brown or Green
Benzene	≥20ppm	Brown
Propane, Propylene	≥100ppm	Brown
Styrene	≥10ppm	Yellow or Brown
Trichloroethylene	≥15ppm	Pale Brown
Gasoline	≥100ppm	Dark Brown
Toluene, Xylene	≥10ppm	Purple

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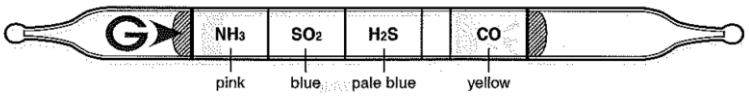
Polytec II (GAS25)



- Qualitative Analysis
- Sampling time: 1 minute for 1 pump stroke (100ml)
- Shelf life up to 2 years from point of manufacture
- Reaction principle: See table below

Polytec II (GAS25) Detecting Layer		Name (Original Colour)			
		NH_3 or amines (pink)	SO_2 (blue)	H_2S (pale blue)	CO (yellow)
Reaction principle		$2NH_3+H_2SO_4 \rightarrow (NH_4)_2SO_4$ or $2R.NH_2+H_2SO_4 \rightarrow (R.NH_3)_2SO_4$	$SO_2+BaCl_2+H_2O \rightarrow BaSO_3+_2HCl$ HCl + base →Chloride	$H_2S+CuSO_4 \rightarrow CuS$	$CO+Na_2Pd(SO_3)_2 \rightarrow Pd$
Substance	Concentration	Measurement Results			
Ammonia, Amines	5ppm	Yellow (9mm)			
Sulphur Dioxide	2ppm		Yellow (3mm)		
Hydrogen Chloride	5ppm		Yellow (3mm)		
Chlorine	1ppm		Yellow (3mm)		
Nitrogen Dioxide	3ppm		Purple (1mm)		
Hydrogen Sulphide	5ppm			Brown (1mm)	
Carbon Monoxide	10ppm				Dark Brown (Entrance)
Hydrogen, Olefines, HC's	1000ppm				Black (Whole Layer)

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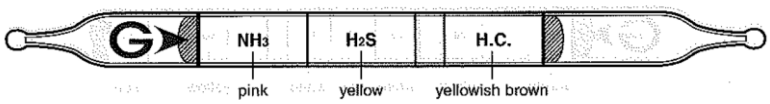
Polytec III (GAS26)



Polytec III (GAS26) Detecting Layer		Name (Original Colour)		
		NH_3 (pink)	H_2S (yellow)	HC (yellowish) brown
Reaction principle		$2NH_3+H_2SO_4 \rightarrow (NH_4)_2SO_4$ or $2R.NH_2+H_2SO_4 \rightarrow (R.NH_3)_2SO_4$	$H_2S+HgCl_2 \rightarrow HSHgCl+HCl$ HCl + base → chloride	$CnHm+Cr^6+H_2SO_4 \rightarrow Cr^3+$
Substance	Concentration	Measurement Results		
Ammonia, amines	5ppm	Yellow (9mm)		
Hydrogen Sulphide	2ppm		Red (4mm)	
Sulphur Dioxide	2ppm		Red (4mm)	
Hydrogen Chloride	5ppm		Red (8mm)	
Chlorine	1ppm		Red (10mm)	
Nitrogen Dioxide	3ppm		Red (4mm)	
Butane	500ppm			Dark Brown (Whole Layer)
Gasoline	20ppm			Dark Brown (Whole Layer)
LPG	5000ppm			Dark Brown (Whole Layer)

- Qualitative Analysis
- Sampling time: 30 secs for 1 pump stroke (100ml)
- Shelf life: up to 2 years from point of manufacture
- Reaction principle: See table (next page)

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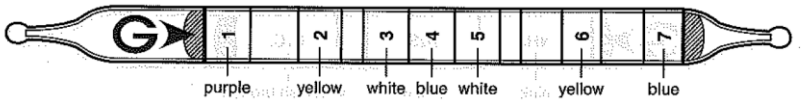
Polytec IV (GAS27)



Polytec IV (GAS27) Detecting Layer		Number/Name (Original Colour)						
		1/NH_3 (purple)	2/HCl (yellow)	H_2S (white)	SO_2 (blue)	NO_2 (white)	CO (yellow)	CO_2 (blue)
Reaction principle		$3NH_3+H_3PO_4 \rightarrow (NH_4)\ _3PO_4$	HCl + base → chloride	$H_2S+CuSO_4 \rightarrow$ CuS	$SO_2+BaCl_2+H_2O \rightarrow$ 2HCl HCl+base+chloide	$NO_2+C_{14}H_{16}N_2 \rightarrow C_{14}H_{14}N_2O$	$CO+Na_2Pd(SO_3)_2 \rightarrow$ Pd	$CO_2+_2KOH \rightarrow K_2CO_3$
Substance	Concentration	Measurement Results						
Ammonia, Amines	≥25ppm ≥150ppm	Faint Yellow Yellow						
Hydrogen chloride	≥5ppm ≥150ppm		Faint Red Red					
Hydrogen Sulphide	≥10ppm ≥120ppm ≥200ppm ≥800ppm			Faint Brown Brown Brown Brown			Faint Dark Brown Dark Brown	
Chlorine	≥5ppm ≥20ppm ≥50ppm				Faint Yellow Yellow Yellow	Faint Yellow Yellow		
Sulphur Dioxide	≥10ppm ≥50ppm				Faint Yellow Yellow			
Nitrogen dioxide	≥5ppm				Purple	Faint Yellow/Orange		
Acetylene	≥30ppm ≥200ppm ≥2000ppm				Purple	Yellowish Orange	Faint Dark Brown Dark Brown	
Carbon Monxide	≥5ppm ≥30ppm						Faint Dark Brown Dark Brown	
Ethylene	≥10,000ppm						Faint Dark Brown	
Phosphine	≥50ppm ≥700ppm						Faint Dark Brown Dark Brown	
Hydrogen	≥50,000ppm ≥100,000ppm						Grey Dark Brown	
Methyl Mercaptan	≥200ppm ≥1000ppm						Faint Yellow/Orange Yellowish Orange	
Propylene	≥10,000ppm ≥50,000ppm						Faint Grey Grey	
Carbon Dioxide	≥5000ppm ≥20,000ppm							Faint Brown Brown