

■ **Passive Dosi-tubes (Time Weighted Average Detector Tubes)**

Gas or Vapour to be Measured Chemical Formula	Tube No. & Name		Measuring Range (ppm)	Measuring Time (hours)	Colour Change		Shelf Life (year)	Note	TLV-TWA, C (ACGIH) (ppm)
					Original	Stain			
Acetaldehyde CH ₃ CHO	91D	Formaldehyde	0.1-20	1-10	Yellow	Reddish brown	1*		C 25
	151D	Acetone	4-1200	1-10	Yellow	Reddish brown	2*	T	
	152D	Methyl ethyl ketone	1.2-360	1-10	Yellow	Reddish brown	2*	T	
Acetic acid CH ₃ CO ₂ H	81D	Acetic acid	0.5-100	1-10	Purple	Yellow	3	T	10
Acetic anhydride (CH ₃ CO) ₂ O	81D	Acetic acid	0.3-60	1-10	Purple	Yellow	3	T	1
Acetone CH ₃ COCH ₃	151D	Acetone	5-1500	1-10	Yellow	Reddish brown	2*	T	250
	152D	Methyl ethyl ketone	1.4-420	1-10	Yellow	Reddish brown	2*	T	
Ammonia NH ₃	3D	Ammonia	2.5-1000	0.5-10	Purple	Yellow	3	T	25
	3DL	Ammonia	0.1-10	1-10	Pink	Yellow	2	TH	
Benzene C ₆ H ₆	122DL	Toluene	2.4-600	1-10	white	Brown	2		0.5
1,3-Butadiene CH ₂ :CHCH:CH ₂	174D	1,3-Butadiene	1.3-200	1-8	Reddish purple	Pale brown	2	T	2
Carbon dioxide CO ₂	2D	Carbon dioxide	0.02-12%	0.5-10	Pale red	Yellow	2	T	5000
Carbon monoxide CO	1D	Carbon monoxide	1.04-2000	0.5-48	Pale yellow	Brown	2		25
	1DL	Carbon monoxide	0.4-400	0.5-24	Pale yellow	Brown	2*		
Chlorine Cl ₂	8D	Chlorine	0.08-100	0.5-24	White	Yellow	2		0.5
	132D	Trichloroethylene	2.4-240	1-8	Yellow	Purple	1*	T	
Cumene C ₆ H ₅ CH(CH ₃) ₂	122DL	Toluene	3.4-850	1-10	White	Brown	2		50
1,2-Dichloroethylene ClCH:CHCl	174D	1,3-Butadiene	3.8-600	1-8	Reddish purple	Pale brown	2	T	200
	132D	Trichloroethylene	6-600	1-8	Yellow	Purple	1*	T	
Dimethylamine (CH ₃) ₂ NH	3D	Ammonia	1.9-750	0.5-10	Purple	Yellow	3	T	5
N,N-Dimethylethylamine C ₂ H ₅ N(CH ₃) ₂	3D	Ammonia	4-1600	0.5-10	Purple	Yellow	3	T	
Ethanol C ₂ H ₅ OH	112D	Ethanol	100-25000	1-10	Yellow	Brown	3		STEL 1000
Ethyl benzene C ₆ H ₅ C ₂ H ₅	122DL	Toluene	2.8-700	1-10	White	Brown	2		20
Ethylene CH ₂ :CH ₂	174D	1,3-Butadiene	1.5-240	1-8	Reddish purple	Pale brown	2	T	200
Formaldehyde HCHO	91D	Formaldehyde	0.1-20	1-10	Yellow	Reddish brown	1*		C 0.3
Formic acid HCO ₂ H	81D	Acetic acid	0.55-110	1-10	Purple	Yellow	3	T	5
Furfural C ₅ H ₄ O ₂	91D	Formaldehyde	0.3-60	1-10	Yellow	Reddish brown	1*		2
Hydrazine N ₂ H ₄	3D	Ammonia	1.6-650	0.5-10	Purple	Yellow	3	T	0.01
Hydrogen chloride HCl	14D	Hydrogen chloride	1-100	1-10	Yellow	Purple	3	TH	C 2
	132D	Trichloroethylene	1.8-180	1-8	Yellow	Purple	1*	T	
	17D	Hydrogen fluoride	0.4-40	1-10	Yellow	Purple	3	TH	
Hydrogen cyanide HCN	12D	Hydrogen cyanide	1-200	1-10	Yellow	Pink	2		C 4.7
Hydrogen fluoride HF	14D	Hydrogen chloride	2.5-250	1-10	Yellow	Purple	3	TH	0.5
	17D	Hydrogen fluoride	1-100	1-10	Yellow	Purple	3	TH	
Hydrogen peroxide H ₂ O ₂	32D	Hydrogen peroxide	0.5-40	1-10	White	Yellow	3	T	1

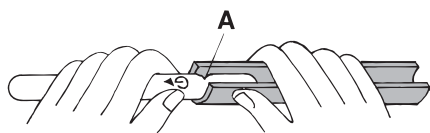
T: Temp Correction H: Humidity Correction * Refrigerated Storage Mesh: Correction Factor/Chart
See page 38 for additional symbols and definitions.

Gas or Vapour to be Measured Chemical Formula	Tube No. & Name		Measuring Range (ppm)	Measuring Time (hours)	Colour Change		Shelf Life (year)	Note	TLV-TWA, C (ACGIH) (ppm)
					Original	Stain			
Hydrogen sulphide H ₂ S	4D	Hydrogen sulphide	0.2-200	1-48	White	Brown	3		1
Isoprene CH ₂ :C(CH ₃)CH:CH ₂	174D	1,3-Butadiene	2.5-400	1-8	Reddish purple	Pale brown	2	T	
Methylamine CH ₃ NH ₂	3DL	Ammonia	0.19-19	1-10	Pink	Yellow	2	TH	5
Methyl ethyl ketone CH ₃ COC ₂ H ₅	152D	Methyl ethyl ketone	2-600	1-10	Yellow	Reddish brown	2*	T	200
	91D	Formaldehyde	0.125-25	1-10	Yellow	Reddish brown	1*		
	151D	Acetone	6.5-1950	1-10	Yellow	Reddish brown	2*	T	
Methyl isobutyl ketone (CH ₃) ₂ CHCH ₂ COCH ₃	151D	Acetone	11.5-3450	1-10	Yellow	Reddish brown	2*	T	20
	152D	Methyl ethyl ketone	4-1200	1-10	Yellow	Reddish brown	2*	T	
Nitric acid HNO ₃	14D	Hydrogen chloride	0.8-80	1-10	Yellow	Purple	3	TH	2
	17D	Hydrogen fluoride	0.32-32	1-10	Yellow	Purple	3	TH	
Nitrogen dioxide NO ₂	9D	Nitrogen dioxide	0.1-30	1-10	White	Yellow	1*	T	0.2
	9DL	Nitrogen dioxide	0.01-3.0	1-24	White	Green	1*		
Styrene C ₆ H ₅ CH:CH ₂	122DL	Toluene	26-6500	1-10	White	Brown	2		20
Sulphur dioxide SO ₂	5DH	Sulphur dioxide	10-600	1-5	Bluish purple	White	3	T	STEL 0.25
	5D	Sulphur dioxide	0.2-100	1-10	Green	Yellow	3		
Tetrachloroethylene Cl ₂ C:CCl ₂	133D	Tetrachloroethylene	3-150	1-8	Yellow	Purple	1*	T	25
	132D	Trichloroethylene	1.5-150	1-8	Yellow	Purple	1*	T	
Toluene C ₆ H ₅ CH ₃	122DL	Toluene	2-500	1-10	White	Brown	2		20
Trichloroethylene Cl ₂ C:CHCl	132D	Trichloroethylene	3-300	1-8	Yellow	Purple	1*	T	10
Triethylamine (C ₂ H ₅) ₃ N	3D	Ammonia	5.3-2100	0.5-10	Purple	Yellow	3	T	0.5
Trimethylamine (CH ₃) ₃ N	3DL	Ammonia	0.23-23	1-10	Pink	Yellow	2	TH	5
Vinyl chloride CH ₂ :CHCl	174D	1,5-Butadiene	1.5-240	1-8	Reddish Purple	Pale brown	2	T	1
Xylene C ₆ H ₄ (CH ₃) ₂	122DL	Toluene	3.4-850	1-10	White	Brown	2		100

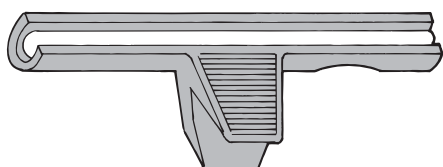
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Measurement procedure

- Write down the starting time of measurement on an adhesive label included inside each box of Dosi-tubes, and place the label onto the tube.
- Insert the G marked end of the Dosi-tube into the No.710 Tube Holder, and break the tube end at the breaking line (A). Remove the broken end from the Tube holder.



- Insert the Dosi-tube fully into the Tube holder.



- Attach the Tube Holder with the Dositube to the shirt collar for personal sampling, or put it on an appropriate measurement point in the workplace for area monitoring.
- When the measurement is finished, write down the finishing time on the label, and determine the actual sampling time :
= (finishing time) - (starting time)
- Obtain the average concentration (TWA value) by the following formula.

$$\text{TWA value (ppm)} = \frac{\text{Dosi-tube reading (ppm} \cdot \text{hr)}}{\text{Actual sampling time (hr)}}$$

