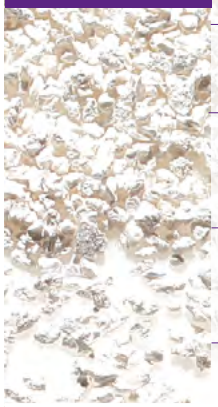
Sorbents – A quick reference guide

Sorbent		Volatility range: Hydrocarbon range	Volatility range: Boiling point (°C)	Suitable analytes	Max. temp (°C) [1]	Desorb temp (°C) [2]
Porous polymer	**Tenax TA**	C_6~C_{30}	100 ~ 450	Aromatics, apolars, polar compounds bp >150°C, and semi-volatiles.	350	300
	**Tenax GR**	C_6 ~C_{30}	100 ~ 450	Aromatics, apolars, polar compounds >150°C, and semi-volatiles.	350	300
	HayeSep D	C_5 ~ C_{12}	50 ~ 200	Low molecular weight compounds, acetylene, halogens, and sulfur groups. GB/GE derivative of VX (CWA).	290	280
	PoraPak N	C_5 ~ C_{10}	50 ~ 200	Polar VOCs, acrylonitrile, acetonitrile, propionitrile, pyridine, volatile alcohols, ethanol, methyl ethyl ketone.	190	165
	PoraPak Q	C_5 ~ C_{12}	50 ~ 200	Oxygenated compounds.	250	190
Graphitised carbon black	**Carbograph 2TD** **Carbopack C** **Carbotrap C**	C_8 ~ C_{20}	130 ~ 340	Alkyl benzenes and large aliphatics. Heavy organics: PCBs, PNAs.	400	360
	**Carbograph 1TD** **Carbopack B** **Carbotrap B**	C_5 ~ C_{14}	50 ~ 250	A wide range from medium to high volatility: Ketones, alcohols, and aldehydes (but not formaldehyde). Non-polars within volatility range. Perfluorocarbon tracer gases. BTX.	400	360
	Carbograph 5TD **Carbopack X**	C_3 ~ C_8	50 ~ 150	Especially good for 1,3-butadiene and light hydrocarbons.	400	360
	Carbopack Y **Carbotrap Y**	C_{12} ~ C_{20}	50 ~ 340	Less volatile hydrocarbons. Pesticides e.g. alachlor atrazine, isoprene, and formothyon.	400	360
Carbonised molecular sieve	**SulfiCarb**	C_3 ~ C_8	-30 ~ 150	Thiols. VVOCs (vinyl chloride, CS_2, methanol, ethanol, and acetone). Used for sterically large VVOCs (SF_6).	400	360
	**Carbosieve S-III**	C_2 ~ C_5	-90 ~ 80	Permanent gases, and ethene to n-C_5, e.g. chloromethane. Also ethylene from small volumes.	400	360
	Carboxen 1000	C_2 ~ C_5	-60 ~ 80	Permanent gases, and ultra-volatile hydrocarbons, e.g. vinyl chloride.	400	360
	Carboxen 1003	C_2 ~ C_5	-60 ~ 80	Permanent gases, and ultra-volatile hydrocarbons, e.g. ethane.	400	360
Zeolite molecular sieve	**Molecular Sieve 5Å**	C_2 ~ C_4	-90 ~ 80	Permanent gases, and nitrous oxide	400	300 (165 for N_2O)
Other	**Silica Gel**	N/A	N/A	Low-boiling polar compounds, especially useful for separating chlorinated or sulfur compounds from matrices with hydrocarbon interferences.	200	180
	Quartz wool	N/A	N/A	SVOCs.	400	360

[1] Maximum temperature should not be exceeded, to prevent irreversible damage to sorbent. When using multi-beds of sorbents, maximum temperature is the lowest of all sorbents within the tube.

[2] Recommended desorption temperatures are a guide and may require optimisation depending on target analytes. Lower desorption temperatures are recommended where possible to prolong sorbent lifetime. Sorbent conditioning should be carried out at 10–20°C above the desorption temperature.

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