Document CRP-PR-ODOUR
Issue 2026-11 · Rev. 1 · A4

CR Resin vs Activated Carbon

Odour-substance comparison · 62 odour-causing and hazardous gases

Source: odour tests by Royal Haskoning, Netherlands · summarised by CR-Products Int.

62	38	20	11
Substances compared	CR Resin good or excellent	CR Resin rated higher than carbon	Carbon rated higher

HOW TO READ THIS SHEET

Two media, one bed

Pure CR Resin (RE) and activated carbon (AC) were rated for each substance from 1 (not) to 5 (excellent). CR Resin is rated higher on **20** substances, carbon on **11**, and both equal on **10**; for **21** substances only CR Resin was tested. CR Resin is strongest on polar and reactive gases — **formaldehyde and ammonia (both 5/5)**, aldehydes, amines, acid gases and hydrogen sulphide. Activated carbon is stronger on aromatic solvents and ketones. That is why filter makers blend 10–15% CR Resin into their carbon bed instead of replacing it.

Green rows: CR Resin rated higher than activated carbon. Blue rows: carbon rated higher. * = resin not or barely regenerable for this substance (the gas stays bound). Odour threshold and odour description as given in the source.

Substance	Activated carbon (AC)	CR Resin (RE)	Odour threshold	Odour
Acetaldehyde	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	0.21	fresh, sweet, oxidised
Acetone	★★★☆☆ 3 · reasonable	★★★☆☆ 3 · reasonable	100.0	chemical sweet, pervasive
Acrolein	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	0.21	burned, sweet, pervasive
Acrylonitrile	★★★★☆ 4 · good	★★★★☆ 4 · good	21.4	onion / garlic
Allyl chloride	? · not tested	★★★★☆ 4 · good	0.47	onion / garlic
Amine (dimethyl)	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	0.047	fishy
Amine (methyl)	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	0.021	fishy, pervasive
Ammonia	★★☆☆☆ 2 · moderate	★★★★★ 5 · excellent	46.8	pervasive, stable odour
Aniline	★★★★☆ 4 · good	★★★★☆ 4 · good	1.0	oily, pervasive
Acetic acid	★★★★☆ 4 · good	★★★★☆ 4 · good	1.0	intense acid
Benzene	★★★★☆ 4 · good	★★☆☆☆ 2 · moderate	4.68	solvent
Benzyl chloride	★★★★☆ 4 · good	★★★☆☆ 3 · reasonable	0.047	solvent
Benzyl sulfide	? · not tested	★★★☆☆ 3 · reasonable	0.0021	cedar, sulphur
Butyric acid	★★★★☆ 4 · good	★★★☆☆ 3 · reasonable	0.001	intense acid
Bromine	? · not tested	★★★★☆ 4 · good *	0.047	pungent, bleach-like
Chlorine	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good *	0.314	pungent, bleach-like
Diphenyl ether	★★★★☆ 4 · good	★★☆☆☆ 2 · moderate	0.1	perfume-like
Diphenyl sulfide	? · not tested	★★★☆☆ 3 · reasonable	0.0047	–
Dimethyl sulfide (1)	? · not tested	★★★★☆ 4 · good	46.8	amine, burned, oily
Dimethylformamide	? · not tested	★★★★☆ 4 · good	100.0	fishy, intense
Dimethyl sulfide (2)	★★★★☆ 4 · good	★★★★☆ 4 · good	0.001	cooked vegetables
Ethanol (synthetic)	★★★★☆ 4 · good	★★★★☆ 4 · good	10.0	sweet, flowery
Ethyl acrylate	★★★★☆ 4 · good	★★★☆☆ 3 · reasonable	0.00047	burned plastic, earthy
Ethyl mercaptan	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	0.001	sulphur
Phenol	? · not tested	★★★★☆ 4 · good	0.047	medicinal, sweet
Formaldehyde	★★☆☆☆ 2 · moderate	★★★★★ 5 · excellent *	1.0	intense, irritating, pervasive
Phosgene	? · not tested	★★★★☆ 4 · good	1.0	hay
Phosphine	? · not tested	★★★☆☆ 3 · reasonable	0.021	onion, mustard

Substance	Activated carbon (AC)	CR Resin (RE)	Odour threshold	Odour
Methanol	? · not tested	★★★★☆ 4 · good	100.0	sweet, fruity
Methyl chloride	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	> 10 ppm	sweet, fruity
Methylene chloride	★★★★☆ 4 · good	★★★★☆ 4 · good	214.0	sweet
Methyl ethyl ketone	★★★★☆ 4 · good	★★☆☆☆ 2 · moderate	10.0	sweet
Methyl isobutyl ketone	★★★★☆ 4 · good	★★☆☆☆ 2 · moderate	0.47	sweet, flowery
Methyl mercaptan	★★★★☆ 4 · good	★★★★☆ 4 · good	0.0021	intense sulphur
Methyl methacrylate	? · not tested	★★★☆☆ 3 · reasonable	0.21	intense sulphur
Monochlorobenzene	★★★★☆ 4 · good	★★★☆☆ 3 · reasonable	0.21	intense chlorine, mothballs
Para-cresol	? · not tested	★★☆☆☆ 2 · moderate	0.001	intense tar
Para-xylene	? · not tested	★★☆☆☆ 2 · moderate	0.47	sweet, mothballs
Perchloroethylene	★★★★☆ 4 · good	★★★☆☆ 3 · reasonable	4.68	chlorinated
Pyridine	★★★★☆ 4 · good	★★★★☆ 4 · good	0.021	burned, intense
Styrene (with inhibitor)	★★★★☆ 4 · good	★★★★☆ 4 · good	0.1	solvent, rubber
Styrene (without inhibitor)	? · not tested	★★★☆☆ 3 · reasonable	0.047	solvent, rubber
Carbon disulphide (CS_2)	? · not tested	★★☆☆☆ 2 · moderate	21.4	sweet, pervasive
Carbon tetrachloride	? · not tested	★★☆☆☆ 2 · moderate	100	sweet, pervasive
Toluene	★★★★☆ 4 · good	★★☆☆☆ 2 · moderate	4.68	sweet, flowery, solvent
Toluene (petroleum)	★★★★☆ 4 · good	★★☆☆☆ 2 · moderate	2.14	mothballs, rubber
Di-isocyanate	? · not tested	★★★☆☆ 3 · reasonable	2.14	medicinal, penetrating
Trichloroethanal	? · not tested	★★★★☆ 4 · good	0.047	sweet, flowery
Trichloroethylene	? · not tested	★★★★☆ 4 · good	21.4	solvent
Hydrogen bromide	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	–	–
Hydrogen cyanide	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	–	–
Hydrogen fluoride	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	–	–
Hydrogen iodide	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	–	–
Hydrogen selenide	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	–	–
Hydrogen sulphide	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	–	–
Hydrochloric acid gas	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	10	irritating, burned
Sulphur dichloride	? · not tested	★★★★☆ 4 · good	0.001	intense sulphur
Sulphur dioxide (humid)	★★☆☆☆ 2 · moderate	★★★★☆ 4 · good	0.47	oppressive
Sulphur dioxide (dry)	★★☆☆☆ 2 · moderate	★★★☆☆ 3 · reasonable	0.47	oppressive
Carbon sulphide	? · not tested	★★☆☆☆ 2 · moderate	0.21	vegetables, sulphur
Hydrogen sulphide (from Na_2S)	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	0.0047	rotten eggs
Hydrogen sulphide (gas)	★★★☆☆ 3 · reasonable	★★★★☆ 4 · good	0.00047	rotten eggs

Ratings are comparative and qualitative; performance in a specific filter is confirmed in a joint test with your current media. Ammonia is additionally confirmed by NedLab Analytical Report 127617/2011 (≈25× the ammonia uptake of activated carbon in the first hour). Formaldehyde report: CR-Resin-Performance-Report-Formaldehyde.pdf. Contact: inquiries@crp-int.com · crp-int.com/oem.html