

Comparison of Detectors used in GC Applications:

Detector	Application	Approx. Cost (K)	Sensitivity ⁽¹⁾	Notes
FID	hydrocarbons	\$4-6	sub-nanogram	very linear, rel. easy to operate, requires fuel gases, not sensitive to all
TCD	everything	\$3-5	10's of nanograms	not very sens., easy to operate, only one gas required
ECD	halogenated, nitro,	\$6-9	low-picograms	very sens., rad. source, not very linear, selective, typ. two gases.
PID	typ. aromatics	\$8-12	10's of picograms	sel., sens, not very linear, one gas, needs cleaning
SCD	sulfur compounds	\$25-30	10's of picograms	very selective, uni-molar, pretty complicated, fuel gases, subject to quench
FPD/PFPD	sulfur/phosphorous	\$12-16	mid-picograms	less sel. than SCD, easier to operate, non-linear in sulfur mode, fuel gases, subject to quench
NPD	nitrogen/sulfur	\$10-12	low-picograms	very selective, hard to operate, fuel gases
AID (Argon DBD)	Inorganics	\$2-5	10's of picograms	inorganics with IP less than 11.5, like ammonia, H ₂ S, COS, linear like PID, typ two gases
HID (DBD)	everything	\$2-6	sub-nanogram	sees all compd. more sens than TCD, harder to operate, use helium only
Hall	halogens/nitrogen/sulfur	\$14-16	sub-nanogram	fairly selective, fairly sensitive, not easy to operate, not very linear
RGD	esp. H ₂	\$10-40	sub-nanogram	very selective to reducing compounds, not very linear, uses mercury,
AED	almost everything by element	\$40	10's of nanograms	varying selectivity, not very sensitive, complicated recipes
MSD	almost everything	\$40	depends on operation	sensitive, requires pump system, fairly complicated, requires cleaning
IRD	all IR active compounds	??	10's of nanograms	Not sure still made, not terribly sensitive, good for isomers,

⁽¹⁾ These values should be used as a guide for the user to evaluate an appropriate detector.