

## EFFECTS OF ACID GAS ON MICRO-FUEL CELLS (STANDARD ELECTROLYTE)

- Spot checking (intermittent use) increases markedly the levels tolerable. Also, the longer the interval between spot checks, the better.
- The thicker the membrane, the higher and longer the tolerance (e.g. C-3 sensors will tolerate a given gas 2-3 times longer the B-1 cells).
- It is impractical from a maintenance perspective to scrub gases above 100 ppm. When scrubbing high levels of acid gases, use sample flow rates as low as application limits permit.
- Use solid scrubbers over liquid where possible, again because of maintenance ease.
- Where scrubbing is not employed, normal cell life will normally be compromised to some extent.
- Interference gases such as C12 and NO2 can be tolerated at much higher levels in percent oxygen analysis. Other acid gas levels are generally independent of the oxygen analysis level.

The following list of maximum allowable levels is based on theoretical considerations only and should not be considered as rigid limits. Where possible, field tests should be run with portable analyzers to determine specific application limits. Limits listed are for continuous analysis; those in parentheses are spot check limits.

GAS	LIMITS
H2S	5 ppm (100 ppm)
SO3	100 ppm (0.1%)
SO2	100 ppm (1%)
HC1	1000 ppm (1%)
HCN	1000 ppm (1%)
CO2	1% * (20% *)
NO	Possible interference (should be field tested)
NO2 (N2O4)	Interferes 1:2
C12 (Halogens)	Interferes 1:2

\* Continuous limit in trace analysis is 1000 ppm (1% for spot checks).