



ACID DEW POINT (ADP) & CORROSION RATES

INDICATIVE VALUES FOR GAS AND OIL FIRING
(NOT VALID FOR COAL FIRING)

H2O Vol%	O2 Vol%	Excess Air	Fuel Type	S in fuel ppm WT	S in fuel WT%	SOx (as SO2) ppm Vol	NEW / CLEAN		OLD / DIRTY		Approx. Corrosion Rate mm/Year		
							SO3 ppm Vol	ADP °C	SO3 ppm Vol	ADP °C			
17	1.7	10%	Pipeline gas quality	0.1	0.00001	0.006	0.0003	61	0.0005	66	-		
				1	0.0001	0.06	0.003	77	0.005	82	-		
				10	0.001	0.6	0.026	94	0.053	99	0.02		
				20	0.002	1.1	0.048	98	0.096	103	0.03		
				50	0.005	2.2	0.095	103	0.19	109	0.06		
				100	0.01	4.5	0.19	109	0.39	114	0.1		
				200	0.02	9.0	0.39	114	0.77	119	0.2		
				500	0.05	23	0.96	120	2.0	126	0.6		
				1000	0.1	45	1.9	125	3.9	131	0.8		
				2000	0.2	90	3.7	130	7.7	136	0.9		
11.2	2.6	15%	Oil #1	5000	0.5	250	12	134	26	140	1.4		
				9.8	Oil #2	10000	1.0	520	27	139	59	144	2.1
						20000	2	1000	48	143	110	149	2.9
									9	3.3	20%	Oil #4,5,6	50000
8.5	4.0	25%	100000	10	5400	170	150	520	160				6.0

SULFUR-FREE FUEL

A sulfur content below 20ppm WT in fuel (or a SO_x content below 1ppm Vol in fluegas) may be neglected.

NEW/CLEAN vs. OLD/DIRTY

In new/clean equipment condition the secondary conversion of SO₂ to SO₃ does take place in the temperature range of 900-400°C through contact with metallic surfaces. This secondary conversion has a significant contribution to SO₃ formation and should not be neglected.

When the equipment is in old/dirty condition this secondary conversion increases due to the catalytic effect of the fouling. In this case the concentration of SO₃ and ADP are accordingly higher.

APPROXIMATE CORROSION RATES

The indicative values are valid for most metallic constructions when the metal temperature is below ADP and surface is kept clean.

In practice acid condensation may result in dirt accumulation and wet deposits. When cleaning is not done or is not effective, the corrosion rates may be higher than indicated.

ACCURATE CALCULATION

Use COMBUST2000™ or DewPoint2000™ program.