

Data Sheet Acids and Bases

Late

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Section 24

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Test Tube	Solution	pH value from pH paper	pH value from sensor
1	vinegar	3	3.21
2	soft drink	5	4.11
3	lemon juice	2	3.2
4	ammonia	10	10.8
5	drain cleaner	11	13.13
6	detergent	9	10.03
7	baking soda	8	8.85

Gas	Initial pH	Final pH	Change in pH	Initial [H ⁺] 10 ^{-pH_i}	Final [H ⁺] 10 ^{-pH_f}	Change in [H ⁺]
CO ₂	5.24	3.11	-2.13	5.8 × 10 ⁻⁶	7.9 × 10 ⁻⁴	7.8 × 10 ⁻⁴
NO ₂	6.17	4.25	-1.92	6.8 × 10 ⁻⁷	5.6 × 10 ⁻⁵	5.5 × 10 ⁻⁵
SO ₂	5.24	3.8	-1.4	6.3 × 10 ⁻⁶	1.6 × 10 ⁻⁴	1.5 × 10 ⁻⁴

Show all of your calculations below.

Initial [H⁺]

- CO₂ 10^{-5.24}
- NO₂ 10^{-6.17}
- SO₂ 10^{-5.2}

Final [H⁺]

- CO₂ 10^{-3.13}
- NO₂ 10^{-4.25}
- SO₂ 10^{-3.8}

	P _{H_f} - P _{H_i}	=
CO ₂	3.11 - 5.24	-2.13
NO ₂	4.25 - 6.17	-1.92
SO ₂	3.8 - 5.2	-1.4

	Final [H ⁺] - Initial [H ⁺]
CO ₂	7.9 × 10 ⁻⁴ - 5.8 × 10 ⁻⁶ = 7.8 × 10 ⁻⁴
NO ₂	5.6 × 10 ⁻⁵ - 6.8 × 10 ⁻⁷ = 5.5 × 10 ⁻⁵
SO ₂	1.6 × 10 ⁻⁴ - 6.3 × 10 ⁻⁶ = 1.5 × 10 ⁻⁴