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Vapor pressure of sulfur dioxide solutions

Scope

The vapor pressure of SO₂ solutions is presented as a function of the SO₂ concentration in weight percent and the absolute [gage] pressure for temperatures between 0° and 120°C.

Safety precautions

Sulfur dioxide is a toxic gas that can cause suffocation and death. Gas masks and other safety devices, as prescribed by industrial and governmental agencies, should be available all times when dealing with SO₂ and its various compounds. Various chemicals that are used for testing SO₂ may be toxic and should not be inhaled nor ingested. Ammonia is a suffocating agent, can be lethal, and should be handled with the same basic precautions as SO₂ is handled.

Content

The two figures list [1] the vapor pressure of SO₂ solutions as a function of SO₂ concentration between 0 and 8 weight percent and the absolute pressure between 25 in. vacuum and 400 cm Hg pressure in a vessel, with parameter lines of 0° to 120° C., and [2] total vessel pressure from 0 to 1500 psig as a function of solution temperatures from 20° to 200°C. and percent free SO₂ from 0% to 100% in solution.
To convert lb/in.² to kPa, multiply lb/in.² x 6.895.
To convert vacuum (in. of mercury) to kPa, multiply by 3.385
To convert cm of mercury to kPa, multiply by 1.3326
Keywords

Sulfite pulping, Sulfur dioxide, Vapor pressure, Temperature

Additional information

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Figure 1: Campbell, W. B., and Maass, O., Can. J. Research 2:42(1930)
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Figure 2: Ingruber, O. V. and Allard, G. A., TAPPI 50(12):597(1967).