

ABOUT SULPHUR FUELS AND ACID DEW POINT RESEARCH STRATEGY

Nicușor Vatachi, Daniela Negoită
University "Dunarea, de Jos" of Galați

ABSTRACT

All combustibles contain the elements carbon and hydrogen. They may also contain a certain amount of sulfur. During the combustion process, these elements are rapidly oxidized. If sulfur is present in the fuel, it will combine with oxygen to form sulfur dioxide (SO₂) and sulfur trioxide (SO₃). It is the presence of these sulfur oxides in the flue gas that represent the largest potential cause for corrosion. Depending on the sulfur content of the fuel, the amount of excess air in combustion, and the flame temperature, approximately 1% to 2% of the sulfur dioxide is further oxidized into sulfur trioxide. When combined with superheated water vapor, sulfur trioxide forms sulfuric acid vapor (H₂SO₄). The paper presents some literature reviews about these aspects

REFERENCES

1. Vatachi. Nicușor., *"The experimental determination of steam boilers flue gas dew temperature"*, Eight International Expert Meeting Power Engineering 1999, Maribor, Slovenia, Proceedings, pp. 191 -201.
2. Pierce, R. R., *"Estimating acid dewpoints in stack gases"*, Chem.Eng., Apt. 11, 1973.
3. *Steam.Its Generation and Use .Babcock & Wilcox, New York, 1975.*
4. Vatachi. Nicușor, *"The air excess and temperature control and the boilers efficiency"*, The Annals of "Dunarea de Jos" University of Galati, Fascicle IV Refrigerating technique, internal combustion engines, boilers and turbines, pp.77-80,2004.
5. F. Crossley. *"Fuel and Future"* Conference, Boiler Availability Session, Paper 4, London, Oct. 1946.
6. F. Barkley, L. R. Burdick and A. A. Berk.
7. *„Modern Power and Engineering"*, 41, 68, 1947.
8. B. Hediey.. *"Sulphur Trioxide in Combustion Gases"*, Fuel Society Journal, 43, pp 45-54, 1962.
9. S. Lisle and J. D. Sensenbaugh.. *"The Determination of Sulphur Trioxide and Acid Dewpoint in Flue Gases "Combustion "*, 36, 7, pp 12-16, January 1965.