

Title (en)

Prevention of formation of nickel subsulfide in partial oxidation of heavy liquid and/or solid fuels.

Title (de)

Verhindern der Formation von Nickelsubsulfid in der Teiloxydation von schweren flüssigen und/oder festen Brennstoffen.

Title (fr)

Empêchement de formation de sous-sulfure de nickel dans l'oxydation partielle de combustibles liquides lourds et/ou solides.

Publication

EP 0364074 A1 19900418 (EN)

Application

EP 89307334 A 19890719

Priority

- US 24258888 A 19880912
- US 33172589 A 19890403

Abstract (en)

A sulfur-containing heavy liquid hydrocarbonaceous fuel and/or solid carbonaceous fuel with a nickel, vanadium, and silicon containing ash is mixed with a copper and/or cobalt-containing material, or a silicon-containing material, and a copper and/or cobalt-containing material. The mixture is reacted by partial oxidation in a down-flowing free-flow unobstructed vertical reaction zone with refractory lined walls at a temperature in the range of about 1800 DEG F to 2900 DEG F. A raw effluent gas stream is produced comprising H₂+CO and containing entrained slag comprising the following phases: (i) an alloy phase selected from the group consisting of Cu-Ni Co-Ni Cu-Fe, and mixtures thereof; (ii) a silicate phase selected from the group consisting of copper silicate, cobalt silicate, and mixtures thereof; (iii) a spinel phase; and (iv) a fluid oxysulfide phase comprising at least one sulfide from the group consisting of Cu, Co, Fe, and mixtures thereof. There is a reduction in the mole ratio H₂S + COS/H₂ + CO in the raw effluent gas stream. Non-gaseous materials e.g. slag containing substantially no Ni₃S₂ are separated from the hot raw effluent gas stream from the gasifier.

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C10J 3/46

IPC 8 full level

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Citation (search report)

- [AD] US 4732700 A 19880322 - NAJJAR MITRI S [US], et al
- [AD] US 4654164 A 19870331 - NAJJAR MITRI S [US]
- [AD] US 4671804 A 19870609 - NAJJAR MITRI S [US]
- [AP] US 4774021 A 19880927 - NAJJAR MITRI S [US], et al

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CN108795448A; US5211873A; US10011792B2; US10550343B2; US11220641B2

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