

[54] **SULFUR RECOVERY PROCESS**
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[57] **ABSTRACT**

A process for the recovery of sulfur from sulfur-bearing ores employing an aqueous leaching solution containing calcium monosulfide, calcium hydrosulfide or mixtures of such calcium sulfide species. The sulfur ore is contacted in an extraction zone with the aqueous leaching solution under conditions to solubilize sulfur from the ore in the form of calcium polysulfide. Preferably, the extraction step is carried out at an elevated temperature. The loaded leaching solution is recovered from the extraction zone and applied to a sulfur-production zone. Here the loaded solution is contacted with hydrogen sulfide under conditions to react the hydrogen sulfide with the calcium polysulfide to produce calcium hydrosulfide and elemental sulfur. The calcium hydrosulfide solution is recycled for use as leaching solution in the sulfur extraction zone.

28 Claims, 3 Drawing Figures