

Search history

Search TAC=(process and removing sulphide and molecular-oxygen and bacteria) (Results 1)
1:

Search [SP]: 1.-15. (canceled) 16. a process for removing sulfide from an aqueous solution comprising sulfide, wherein the aqueous solution is subjected to sulfide-oxidising bacteria in the presence of oxygen in a reactor to oxidise sulfide to elemental sulfur, the process comprising:
2: (a) providing the aqueous solution comprising sulfide(b) supplying a molecular-oxygen containing gas to the reactor containing the sulfide-oxidising bacteria in an aqueous medium, such that one or more aerated zones and one or more non-aerated zones are created in the aqueous medium with upward liquid flow in the aerated zones and downward liquid flow in the non-aerated zones(c) supplying a feed stream of the aqueous solution comprising sulfide to the reactor by injecting the feed stream in the one or more non-aerated zones, wherein the one or more aerated zone(s) are not separated from the one or more non-aerated zone(s) by means of vertically extending reactor internals. 17. the process according to claim 16, wherein the one or more aerated zones and the one or more non-aerated zones are created by supplying the molecular-oxygen containing gas through means for supplying molecular-oxygen containing gas located in a lower section of the reactor, wherein the molecular-oxygen containing gas is supplied to only a part of the cross-sectional area of the lower section of the reactor. 18. the process according to claim 17, wherein the means for supplying molecular-oxygen containing gas comprise one or more aeration tubes. 19. the process according to claim 16, wherein the aqueous solution comprising sulfide is injected into the one or more non-aerated zones at a height above the height at which the molecular-oxygen containing gas is supplied to the reactor. 20. the process according to claim 19, wherein the aqueous solution comprising sulfide is injected into the one or more non-aerated zones in a direction away from the nearest aerated zone. 21. the process according to claim 16, wherein the molecular-oxygen containing gas is air or oxygen-depleted air. 22. the process according to claim 16, wherein the aqueous solution has a sulfide concentration in the range of from 0.1 g/l to 6 g/l. 23. the process according to claim 16, wherein the reactor has a reactor height and a reactor diameter and wherein the height to diameter ratio of the reactor is in the range of from 0.5 to 1.8. 24. the process according to claim 16, wherein the molecular-oxygen containing gas is supplied to the reactor at a normal superficial velocity in the range of from 0.8 to 4 cm/s. 25. a process for purifying a gaseous stream comprising sulfur compounds, the process comprising the following steps: (a) contacting the gaseous stream comprising sulfur compounds with an aqueous solution wherein sulfur compounds are dissolved to obtain a purified gaseous stream and an aqueous solution comprising sulfide(b) removing sulfide from the aqueous solution comprising sulfide obtained in step a) in a reactor containing sulfide-oxidising bacteria in an aqueous medium comprising one or more upward flowing aerated zones and one or more downward-flowing non-aerated zones, by injecting the aqueous solution comprising sulfide into the one or more the non-aerated zones, wherein the aerated zones are not separated from the non-aerated zones by means of vertically extending reactor internals(c) separating elemental sulfur from the aqueous solution to obtain a sulfur slurry and separated aqueous solution and(d) recycling the separated aqueous solution to step a). 26. a reactor suitable for removing sulfide from an aqueous solution comprising sulfide, the reactor comprising: a reaction zone without internal vertical separation walls means for supplying molecular-oxygen containing gas located in a lower section of the reaction zone, wherein only a part of the cross-sectional area of the lower section of the reaction zone is provided with the means for supplying molecular-oxygen containing gas and means for injecting the aqueous solution comprising sulfide into the reaction zone, which are located in a section of the reaction zone above the lower section and at a position above the part of the cross sectional area of the lower section that is not provided with means for supplying molecular-oxygen containing gas. 27. the reactor according to claim 26, wherein the means for supplying molecular-oxygen containing gas are positioned such that the upward movement of the gas supplied to the lower section results in an upward liquid flow in a vertical column above the area to which gas is supplied and a downward liquid flow in a vertical column above the area to which no gas is supplied, thus creating aerated and non-aerated areas in the aqueous medium with upward liquid flow in the aerated zones and downward liquid flow in the non-aerated zones. 28. the reactor according to claim 26, wherein the means for injecting aqueous solution comprising sulfide are located such that injection occurs in a direction away from the nearest cross-sectional area of the lower section of the reaction zone that is provided with the means for supplying molecular-oxygen containing gas. 29. the reactor according to claim 26, wherein the means for supplying molecular-oxygen containing gas is a grid of aeration tubes. 30. the reactor according to claim 29, wherein the grid of aeration tubes comprises first regions of grouped aeration tubes and second regions devoid of aeration tubes wherein said first regions and second regions are alternately distributed over the grid. 31. the reactor according to claim 26, wherein the height to diameter ratio of the reactor is in the range of from 0.5 to 1.8. 32. a process for removing sulfide from an aqueous solution comprising sulfide, in a reactor containing sulfide-oxidising bacteria in an aqueous medium, to oxidise sulfide to elemental sulfur, the process comprising: (a) providing a feed stream of the aqueous solution comprising sulfide(b) aerating a part of the cross-sectional area in a lower section of the reactor, such that aerated zones are created in the aqueous medium above the aerated part and non-aerated zones are created in the aqueous medium above the non-aerated part, with upward liquid flow in the aerated zones and downward liquid flow in the non-aerated zones(c) injecting the feed stream into one or more of the non-aerated zones above the height at which the reactor is aerated, in a downward direction away from the nearest aerated zone(d) discharging liquid from the reactor and(e) separating elemental sulfur and optionally bacterial sludge from the discharged liquid. 33. the process according to claim 32, wherein the aqueous solution has a sulfide concentration in the range of from 0.1 g/l to 6 g/l. 34. the process according to claim 32, wherein the aerated part is aerated with a gas containing 2-15 percent of oxygen. 35. the process according to claim 32, wherein the feed stream is injected at a height that is in the range of 25 to 60 percent, of the total height of the non-aerated zone. 36. a process for purifying a gaseous stream comprising sulfur compounds, comprising the following steps: (a) contacting the gaseous stream comprising sulfur compounds with an aqueous solution having a pH between 7 and 10, to obtain a purified gaseous stream and an aqueous solution comprising sulfide(b) removing sulfide from the aqueous solution comprising sulfide obtained in step a) in a reactor containing sulfide-oxidising bacteria in an aqueous medium comprising one or more upward flowing aerated zones and one or more downward-flowing non-aerated zones, by injecting the aqueous solution comprising sulfide into one or more of the non-aerated zones above the height at which the reactor is aerated, in a downward direction away from the nearest aerated zone(c) separating elemental sulfur from the aqueous solution to obtain a sulfur slurry and separated aqueous solution and(d) recycling the separated aqueous solution to step a). (Results 0)

Search TAC=(process and removing sulphide and oxygen and bacteria) (Results 1)
3:

1) Family number: 58870142 (US2016215310A)

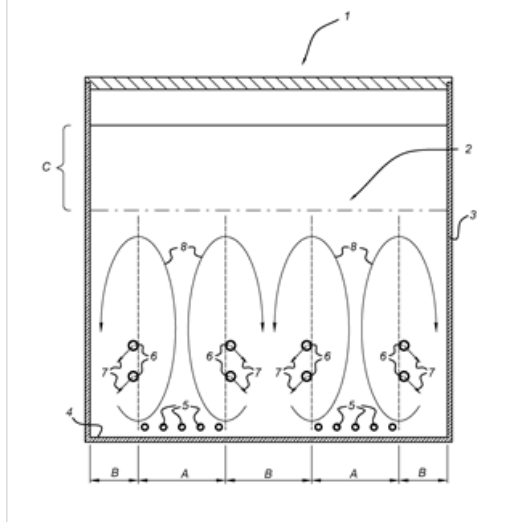
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Title: A **PROCESS** FOR **REMOVING SULPHIDE** FROM AN AQUEOUS SOLUTION

Abstract: Source: US2016215310A A **process** for **removing sulphide** from an aqueous solution comprising sulphide is disclosed, in which the aqueous solution is subjected to sulphide-oxidising **bacteria** in the presence of **oxygen** in a reactor to oxidise sulphide to elemental sulphur. According to the **process**, a molecular-**oxygen** containing gas is supplied to a reactor containing the sulphide-oxidising **bacteria** in an aqueous medium, such that one or more aerated zones and one or more non-aerated zones are created in the aqueous medium with upward liquid flow in the aerated zones and downward liquid flow in the non-aerated zones; and a feed stream of the aqueous solution comprising sulphide is injected into the reactor in the one or more non-aerated zones, wherein the one or more aerated zone(s) are not separated from the one or more non-aerated zone(s) by means of vertically extending reactor internal.

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CPC: C01B17/06 C02F3/223 C02F3/301 C02F3/345 C02F2101/101
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CL2016000711 A1	20170303	CL20160000711	20160324
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CO16058075 A2	20160909	CO20160058075	20160307
EP3049367 A1	20160803	EP20140784546	20140926
IN201617008481 A	20160715	IN201617008481	20160311
JP2016531728 T2	20161013	JP20160516889T	20140926
KR20160058815 A	20160525	KR20167007901	20140926
MX2016003778 A1	20160624	MX20160003778	20140926
PE07252016 A1	20160805	PE20160000378	20140926
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