

อมราวดี มนະຈິດຕີ: ການກຳຈັດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດຕ້ວຍຕົວລາງທີ່ມີສ່ວນປະກອບຂອງເຫັນກີກ.
(HYDROGEN SULFIDE REMOVAL BY IRON CONTAINING MEDIA) ອ. ທີ່ປົກກົດ
ວິທາຍານີພັນຄົງທັກ : ພ.ສ. ດຣ.ພິຈູນ ວິຫຼວງວາງຄີ, 188 ນ້ຳ.

งานວິຈັນນີ້ເປັນການສຶກຫຼາງປະສົງທີ່ປົກກົດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດຕ້ວຍຕົວລາງທີ່ໃຊ້ຄືອ ດີນລູກຮັງ ໂດຍໃນການວິຈັນນີ້ໄດ້ແປ່ງການທົດລອງອອກເປັນ 3 ຊົ່ວງ ຄື່ອ ຊົ່ວງທີ່ 1 ມີບົນມານແລ້ກທີ່ໜີມດ ປົມມານເພື່ອຮັສໄອອອນ ແລະບົນມານແລ້ກອອກໄຫຼດຂອງດີນລູກຮັງຄົນສາຍອຸດຮານີ – ສກລຸນຄຣແລະຄົນສາຍທ່າແວ່ – ສ່ວິສົງຄຣາມ ທີ່ຂັນາດ 2.36 ແລະ 1.18 ມິລລິມີຕຣ ທຳການເລືອກຂາດຈາກແລ່ງທີ່ມີປົມມານແລ້ກອອກໄຫຼດມາກທີ່ສຸດ ຊົ່ວງທີ່ 2 ເປັນການສຶກຫຼາງຫາຕົວລາງທີ່ເໝາະສົມໃນການກຳຈັດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດທີ່ຈະມີຮະຄວາມລືກ 0.2 ເມືຕຣ ໂດຍຄອລັນນີ້ທຳຈາກວັດສຸດພົວື່ງ ມີຂັນາດເສັ້ນຝ່ານ ຜົນຍົກລາງ 0.06 ເມືຕຣ ສູງ 0.7 ເມືຕຣ ນຳດີນລູກຮັງຈາກຊົ່ວງທີ່ 1 ມາແປ່ງເປັນ 4 ແບບຄືອແບບທີ່ 1 ດີນລູກຮັງໄມ້ ຝ່າເຂົ້ອ ແບບທີ່ 2 ດີນລູກຮັງຈາກເຂົ້ອ ແບບທີ່ 3 ດີນລູກຮັງຈາກເຂົ້ອຜົມຜົງແລ້ກຮ້ອຍລະ 10 ໂດຍມາລ ແລະແບບທີ່ 4 ດີນລູກຮັງຈາກເຂົ້ອຜົມຜົງແລ້ກຮ້ອຍລະ 20 ໂດຍມາລ ແລະຊົ່ວງທີ່ 3 ເປັນການສຶກຫຼາງປະສົງທີ່ປົກກົດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດທີ່ຈະມີຮະຄວາມລືກ 0.3, 0.4 ແລະ 0.5 ເມືຕຣ ໂດຍໃຊ້ຕົວລາງຈາກຊົ່ວງທີ່ 2 ຊຶ່ງໃນການທົດລອງຊົ່ວງທີ່ 2 ແລະ 3 ກໍານົດໃຫ້ຄວາມເຂັ້ມຂັ້ນກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດເຂົ້າຮັບຄືອ 50 ສ່ວນໃນລ້ານສົວທີ່ອັຕຣາການໄໝລຂອງກຳ້າ 8 ລິຕຣຕ່ອນາທີ່ຕລອດການທົດລອງ

ຜົນການທົດລອງຊົ່ວງທີ່ 1 ດີນລູກຮັງຂອງຄົນສາຍອຸດຮານີ – ສກລຸນຄຣທີ່ຂັນາດດິນ 2.36 ມິລລິມີຕຣມີ ປົມມານແລ້ກອອກໄຫຼດມາກທີ່ສຸດຄືອຮ້ອຍລະ 32.54 ໂດຍນໍ້າໜັກ ຜົນການທົດລອງຊົ່ວງທີ່ 2 ຕົວລາງທີ່ເໝາະສົມໃນການກຳຈັດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດຄື່ອ ດີນລູກຮັງຈາກເຂົ້ອຜົມຜົງແລ້ກຮ້ອຍລະ 20 ໂດຍມາລ ຊຶ່ງມີຊົ່ວງເວລາທີ່ມີປະສົງທີ່ປົກກົດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດທີ່ຖຸກຈັບໄດ້ຕ່ອນປົມມານຕົວລາງນາກທີ່ສຸດຄື່ອ 7.34 ມິລລິກຣັມຕ່ອກຮັນ ແລະມີປົມມານໜ້າໄຟຟົດເພື່ອທີ່ຖຸກຈັບສະສົມຮ້ອຍລະ 7.95 ໂດຍນໍ້າໜັກ ແລະຜົນການທົດລອງຊົ່ວງທີ່ 3 ທີ່ຈະມີຮະຄວາມລືກ 0.3, 0.4 ແລະ 0.5 ເມືຕຣຈະມີຊົ່ວງເວລາທີ່ມີປະລິທີ່ປົກກົດກຳ້າໄອໂດຣເຈນໜ້າໄຟຟົດທີ່ຖຸກຈັບໄດ້ຕ່ອນປົມມານຕົວລາງຄື່ອ 9.07, 7.57 ແລະ 7.57 ມິລລິກຣັມຕ່ອກຮັນ ຕາມລໍາດັບ ແລະມີປົມມານໜ້າໄຟຟົດເພື່ອທີ່ຖຸກຈັບສະສົມຄືອຮ້ອຍລະ 8.55, 10.20 ແລະ 10.71 ໂດຍນໍ້າໜັກ ຕາມລໍາດັບ

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This study was aimed at efficiencies of hydrogen sulfide removal by lateritic soils. The research was divided into 3 experimental periods. The first period was to study quantity of total iron, ferrous ion (Fe^{2+}) and iron oxide (Fe_2O_3) in lateritic soils from Udonthani – Sakonnakhon road and Thare – Si songkhram road at diameters of 2.36 and 1.18 millimeter, and was to select the size which had the highest quantity of iron oxide. The second period was to study different media for the removal of hydrogen sulfide at the depth of 0.2 meter. The columns were built using 0.06 meter-diameter PVC cylinders and with 0.7 meter height. The media used were 1) lateritic soils with no disinfection, 2) lateritic soils with disinfection, 3) lateritic soils disinfected and blended with 10 percent by mass of iron filing and 4) lateritic soils disinfected and blended 20 percent by mass of iron filling. The third period was to study the removal efficiency for hydrogen sulfide at different depth (0.3, 0.4 and 0.5 meters). In this case, media used in the column was chosen from the second period. In second and third period hydrogen sulfide concentration of 50 ppmv at the air flow rate of 8 liters per minute were used for all experimental.

From the first experiment, quantity of iron oxide, lateritic soils from Udonthani – Sakonnakhon road at 2.36 millimeter diameter had the most quantity of iron oxide (32.54 percent by mass). From the second experiment, the best media was the disinfected lateritic soils blended with iron filing of 20 percent by mass. Hydrogen sulfide removal capacity at 100 percent was 13 days. Maximum hydrogen sulfide removal rate per mass was 7.34 milligram per gram and total sulphur accumulation was 7.59 percent by weight. The finding of the third experiment was the removal efficiency at different depths. As the depth increased the hydrogen sulfide removal capacity at 100 percent increased too. At the media depth of 0.3, 0.4 and 0.5 meters; the times for 100 percent removal were 18, 25 and 34 days; hydrogen sulfide removal rate per mass was 9.07, 7.57 and 7.57 milligram per gram and the sulphur accumulative were 8.55, 10.20 and 10.71 percent by weight, respectively.