

SARI

Indonesia merupakan salah satu negara di kawasan Asia Tenggara dengan produksi timah terbesar kedua di dunia. Namun, kegiatan eksploitasi timah yang dilakukan secara terus menerus setiap tahunnya menyebabkan produksi timah di Indonesia relatif menurun. Pencarian sumber daya baru endapan timah primer merupakan solusi untuk menambah pasokan timah di Indonesia. Oleh sebab itu, endapan timah primer menjadi target eksplorasi saat ini oleh beberapa praktisi perusahaan khususnya PT. Timah Tbk. Daerah penelitian berada di Desa Burungmandi dan sekitarnya, Kecamatan Damar, Kabupaten Belitung Timur, Provinsi Bangka Belitung. Penelitian ini merupakan kerjasama antara UGM dan PT. Timah Tbk dengan tujuan utama untuk mempelajari karakteristik mineralisasi timah primer di Indonesia meliputi aspek geologi, jenis alterasi dan mineralisasi, serta genesis endapan timah primer. Metode analisis yang dilakukan yaitu pemetaan geologi, pemetaan zona alterasi, dan analisis laboratorium meliputi petrografi, mikroskopi bijih, *Analytical Spectral Devices* (ASD), *X-Ray Diffraction* (XRD), dan *X-Ray Fluorescence* (XRF).

Hasil penelitian menunjukkan bahwa daerah penelitian tersusun oleh satuan dari tua ke muda yaitu batulempung sisipan batupasir, batupasir sisipan batulempung, granodiorit, syenogranit dan endapan pasir lempungan. Litologi batulempung, batupasir dan granodiorit berperan sebagai batuan induk dan syenogranit sebagai batuan sumber mineralisasi. Struktur geologi yang dijumpai yaitu lipatan, kekar gerus, kekar tarik, sesar naik, sesar turun, sesar geser dekstral, dan sesar geser sinistral. Mineralisasi di daerah penelitian cenderung dikontrol oleh sesar geser sinistral NE-SW dan sesar geser dekstral NW-SE sebagai struktur *pre-syn mineralization*. Alterasi hidrotermal yang berkembang di daerah penelitian yaitu: albitisasi (ortoklas+albit), greisen (kuarsa+muskovit±flogopit±turmalin±topaz), silisifikasi (kuarsa+illit±serisit) dan argilik (kaolin+illit+smektit±halosit±serisit±klorit). Tipe mineralisasi daerah penelitian yaitu sistem greisen yang berasosiasi dengan sistem urat. Paragenesa urat dimulai urat magnetit, kuarsa-muskovit, kuarsa-turmalin, kuarsa, *clay*, dan oksida Fe. Mineral bijih utama pembawa timah yaitu kasiterit, dengan mineral bijih ikutan diantaranya arsenopirit, *bismuthinite*, digenit, galena, gutit, hematit, kalkopirit, kovelit, magnetit, pirit, rutil, skorodit, dan sfalerit. Hasil analisis XRF menunjukkan kadar Sn: urat kuarsa 13.300 ppm, urat kuarsa-mika 6.400 ppm, urat magnetit 3.840 ppm, kuarsa-turmalin 1.100 ppm, greisen 350-820 ppm, urat *clay* 200 ppm, dan urat oksida besi 260 ppm.

Kata kunci: Mineralisasi, Endapan Timah Primer, Burungmandi.

ABSTRACT

Indonesia is one of the countries in The Southeast Asia Region with the second largest tin producer in the world. However, continuous exploitation of tin deposits can lead to tin production drop. One of the best solution is to explore new discoveries of primary tin deposits. The research area is located in Burungmandi and the surroundings, Damar Sub-district, East Belitung District, Bangka Belitung Province, Indonesia. This research is a joint research between Universitas Gadjah Mada and PT Timah Tbk with the main goals are to study characteristics of primary tin mineralization that include geological aspects, alteration and mineralization, and genesis of primary tin deposits. This study integrates geological mapping, alteration mapping and laboratory analyses include petrography, mineragraphy, ASD, XRD, and XRF.

The result of the research shows that the research area is composed by siltstone, sandstone, and granodiorite which act as host rocks, syneogranite as source rock, and sand-clay deposits. The geological structures consist of fold, joints, normal faults, thrust fault and strike-slip faults. Structures that controls alteration and mineralization are dextral strike-slip faults with NW-SE orientation which were cut by sinistral strike-slip faults with NE-SW. The alteration can be classified into four zones: albitization (orthoclase+albite), greisenisation (quartz+muscovite±phlogophite±tourmaline±topaz), silicification (quartz±chrysotile±sericite±illite), argillic (kaolinite+illite±smectite±halloysite±sericite±chlorite). Build upon geological condition and alteration, this area belongs to greisen associated with vein system. Paragenesis of vein mineralization in research area starts from magnetite lode/vein, quartz-mica vein, quartz-tourmaline vein, quartz vein, clay vein and oxide vein. Ore microscopy analysis indicate cassiterite as the main ore mineral that containing Sn and it is associated with arsenopyrite, bismuthinite, digenite, galena, goethite, hematite, chalcopyrite, covellite, magnetite, pyrite, rutile, schorodite, dan sphalerite. XRF analysis shows the concentration of Sn in quartz vein reaches up to 13300 ppm, quartz-mica (3840 ppm), quartz-tourmaline (1100 ppm), greisen (820 ppm), clay vein (200 ppm), and oxide vein (260 ppm).

Key words: Mineralization, Primary tin deposits , Burungmandi