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1987/46. Mineralogy of heavy-mineral rich sands, Naracoopa.

R. S. Bottrill

Abstract

Beach sand examined from Naracoopa is very rich in 'leucoxene' (altered ilmenite), zircon, tourmaline and rutile. Sand in the stockpile contains about 85% (by volume) Ti-rich oxides, dominantly 'leucoxene'. Chromite and cassiterite are also present.

INTRODUCTION

P. Allan of the Department of Mines has collected samples of beach sand and of stockpiled 'ilmenite' from the old beach-sand workings at Naracoopa, King Island. The mineralogy of the two samples was determined by transmitted and reflected light microscopy, and is summarised in Table 1.

MINERALOGY

Most of the ilmenite has been altered almost completely to fine-grained material loosely known as 'leucoxene' (variable mixtures of rutile with anatase, sphene and other titanium-rich minerals). The rutile recorded in the table is the coarse-grained variety. Most Ti-minerals are well rounded.

Chromite shows little alteration and is moderately translucent and well rounded. Cassiterite is pale yellow-brown and moderately rounded. Tourmaline is typically well rounded and variable in colour from blue to green, brown and almost colourless. The pyroxenes are relatively fresh, pale green and slightly etched (?pigeonite and augite). Zircon is typically euhedral to subhedral but sometimes well rounded.

Most grains show a high degree of liberation, although some ilmenite and leucoxene contain fine inclusions.

DISCUSSION

The beach sand and stockpiled material examined contains about 35% and 85% by volume of Ti-bearing minerals. Although the Ti content of leucoxene is variable, this probably reflects very approximately 30 and 60 wt% TiO<sub>2</sub> respectively, in the samples.

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**Table 1 Mineralogy of Naracoopa Sands**  
(Approximate volume %, probably ± 20% relative)

<i>Sample No.</i>	400314	400315
<i>Identification</i>	Beach sand	Stockpiled 'Ilmenite'
Ilmenite	5	20
Rutile	5	5
Leucoxene	25	60
Magnetite	tr	-
Chromite	tr	5
Cassiterite	tr	-
Zircon	10	tr
Tourmaline	10	tr
Pyroxene	tr	tr
Garnet	tr	tr
Limonite	tr	-
Topaz	-	tr
Non-Heavy*	45	10

\* the non-heavy fraction is predominantly quartz, with some carbonates, lithic, feldspar and clayey particles.

tr : trace (<5%)  
- : not detected