Victoria is committed to economic development

Victoria provides a positive business environment efficient regulation and security of tenure for explorers and developers.

To access more information about Victoria’s gold and other minerals, visit earthresources.efirst.com.au

Victoria offers advice and information to assist explorers, including:

- A 3D geological model that can be used to analyse resource potential, predict the location of undiscovered earth resources and allow the development of four-dimensional resource management frameworks earthresources.efirst.com.au
- An online tool to create customised scientific maps in real time or to view, download or interrogate geoscientific databases, including geology, drill holes and geochemistry earthresources.vic.gov.au/earth-resources/maps-reports-and-data/geovic
- Free digital geoscience maps, reports and data, including geological, geochemical, geophysical, regolith, minerals and open file tenements earthresources.efirst.com.au
- Pre-competitive data, information and knowledge accumulated over more than 160 years of exploration and mining.

Notes

1 Not all EDR is accessible; some resource is quarantined due to location (e.g. National Parks) or other mining restriction
3 Mineral Resources – the material is not subject to inaccurate, misleading or derogatory treatment.
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7 For more information about Victoria’s mineral sands, visit earthresources.vic.gov.au/earth-resources/maps-reports-and-data/geovic
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Key reasons to explore in Victoria

- Victoria has proven resources whose size, grade and assemblages are globally significant.
- Victoria has an established mineral sands industry with a centrally located mineral separation plant.
- There are exploration opportunities in Victoria in the Gippsland Basin or to rework ground to explore for both coarse and fine grained deposits in the Murray Basin.
- Victoria features easy access to sophisticated infrastructure, established markets and export pathways.
- Victoria provides opportunities to have an enviable lifestyle in a secure environment with world class facilities and services.

Mineral Sands

VICTORIA – a world-class mineral sands province

Victoria, Australia, is emerging as a world-class mineral sands province offering developers proven mineral endowment, supported by quality geoscience information and sophisticated export infrastructure.

Victoria’s mineral sands deposits

Victoria’s mineral sands deposits are considered extremely competitive in a global context, in terms of size, grade and assemblage.

Victoria has extensive deposits of mineral sands which comprise:
- Titanium minerals (rutile and ilmenite);
- Zircon;
- Monazite; and
- Xenotime, containing yttrium.

Victoria’s mineral sand endowment includes an estimated 350 million tonnes (Mt) of coarse grained, strandline deposits and a further three billion tonnes of fine grained, WIM style deposits.

The coarse grained, strandline deposits are currently mined mainly for their zircon and rutile contents.

Proven prospectivity

In 2011, Victoria had 218% of Australia’s Economic Demonstrated Resource (EDR) of ilmenite, 33.8% of its zircon and 42.3% of its rutile.

In 2012-2013, Victoria’s mineral sands production was 86,243 t zircon, 140,842 t rutile and 67,067 t ilmenite at a total estimated net market value of $282.7 million.

During 2011 Australia was the world’s largest producer of rutile and zircon at 61.3% and 52.6% respectively. Australia was also the third largest producer of ilmenite at 11.1% of global production.

earthresources.vic.gov.au
Mineral sands in Victoria

Heavy Mineral Sands (HMS) were first reported in the Murray Basin in Victoria in 1967. A concerted and broad-ranging campaign by CRA Exploration Pty Ltd (now Rio Tinto) and other companies during the 1980s and 1990s established the Murray Basin as a major HMS province. HMS are placer deposits in which high specific gravity minerals are concentrated. In Victoria, the valuable heavy minerals (VHM) fraction of mineral sands deposits includes zircon, rutile, leucoxene and ilmenite; monazite is also present.

Deposit formation

HMS accumulated in the near-shore environment of the Murray Basin sea, primarily as strandline deposits (where HMS tend to concentrate in a near-shore, low-energy zone) and WIM-style off-shore deposits which formed in deeper water. WIM deposits predate strandline deposits.

Victoria hosts two styles of mineral sands deposits: strandline and WIM style. Strandline deposits are characterised by their relatively linear geometry and WIM-style deposits by their sheet-like geometry.

Strandline deposits tend to be coarse grained (>100 µm grain size), relatively rich, with grades in the range of 5-20% HMS, but are relatively low tonnage. WIM-style deposits tend to be fine grained (<100 µm grain size) with lower grades, in the range of 2-5% HMS, but tonnages are generally at least one order of magnitude greater than that of strandline deposits.

The WIM-style deposits have exhibited high quality mineral assemblages, showing 20% zircon, up to 35% high titania minerals and 40% ilmenite.

Building on its existing base

Victoria is extremely well placed on a world scale due to the high quality of its mineral assemblage, the high resource grade and the substantial size of the mineral sands resource.

The Murray Basin is home to more than 70 strandline mineral sands deposits containing more than 350 million tonnes of material.