



exposure

Profiling new and undeveloped industrial mineral deposits worldwide

Oregon minsands

The Oregon minsands project, located near Coos Bay in south-west Oregon, is 100% owned by Oregon Resources Corp. (ORC), a fully owned subsidiary of Resource Finance and Investments Ltd.

The company has established proven plus probable reserves of about 2.1 m. s. tons (1.9m. tonnes) of mineral sands found in ancient beach terraces. Proven reserves from minable deposits total around 1.4m. s. tons (1.27m. tonnes) containing about 13% chromite and 4% garnet. Geological resources comprise an estimated additional 7m. s. tons (6.4m. tonnes).

Project history

In 1991, ORC undertook a major drilling and sampling program consisting of the exploration and development drilling of 550 holes in four deposits (South Seven Devils, North Seven Devils, Shepard and Westbrook). From this, 2,995 samples were collected, with 2,603 assayed primarily for chromite and zircon. The results were compiled and confirmed significant grades of chromite, garnet, and zircon.

A fifth deposit, the West Bohemia was also explored with 24 drill holes giving a proven reserve of 220,000 s. tons (199,500 tonnes) grading 7.7% chromite.

Although the 1991 drilling program indicated that the number of minerals present in the deposit were unusually varied (including garnet, zircon, ilmenite, silica, leucosene, kyanite, staurolite and rutile), a bulk sample sent to The Mineral Sands Consultancy (TMSC) in 1993 for testing showed that the mineral suite contains two economic minerals – chromite and garnet. In addition, a mixed product containing staurolite, kyanite and zircon, could be produced.

TMSC prepared a feasibility study incorporating a production processing sheet. Using this, a recently completed project estimated annual production to be approximately 45,000 s. tons (41,000 tonnes) of a foundry grade chromite; 13,000 s. tons (13,000 tonnes) of garnet; and 18,000 s. tons (16,000 tonnes) of a blended zircon/kyanite/staurolite product.

Conceptual mine plan

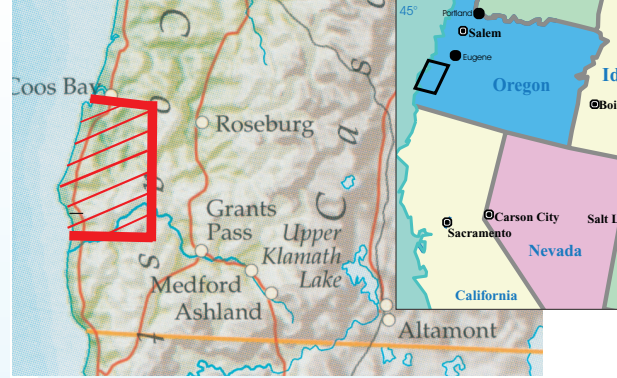
From results of the sampling and test work, ORC has developed a conceptual mine plan. Material will be removed using front-end loaders and trucks, as the material is only loosely consolidated, and stockpiled next to the working site to allow easy access and retrieval during the ongoing backfill and reclamation work.

Material will then undergo wet mill separation and gravity separation using spirals. From this, concentrates will be produced using magnetic and electrostatic equipment. Magnetic minerals will be separated using variable and controllable magnetic separation equipment, whilst the non-magnetic rutile and zircon will be separated using electrostatic roll and plate separators. Additional gravity and screening functions will assist in making final high grade products.

Markets

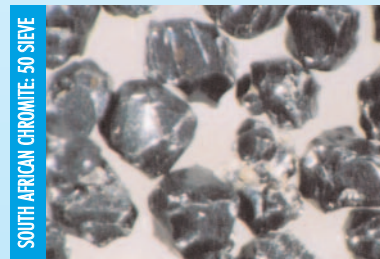
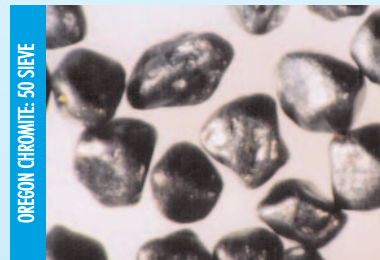
Current market research conducted on the chromite sand obtained from sampling has proven to be very advantageous for use in foundry applications. Currently, the majority of chromite sand is sourced from South Africa (see *IM August '05*, p 47). Compared to this sand, the Oregon chromite is much finer, and is naturally rounded, giving the material excellent strength, when used both on its own as well as in a mixture with materials such as zircon. Consequently, it is ideally suited as a foundry sand for heavy castings. In addition, owing to its fineness, castings are also much smoother, as the molten metal does not infiltrate into the sand.

With current and projected tightness for foundry grade chromite material, as well as significant shipping costs to America from South Africa, ORC feel that its material will be well accepted into the North American market. Based on its sales and production plan, ORC would be capable of supplying around 8% of the world market estimated at about 450,000-500,000 tonnes, and 38% of the United States current annual demand for ten years.



Market research has also indicated that the garnet could be successfully used in waterjet cutting. Sample garnet from the site was comparison tested by a waterjet cutting manufacturer against the Barton Mines New York garnet, which is regarded as the benchmark (reference value of 100).

In comparison, ORC garnet scored 95.8 in aluminium cutting and 90.9 in steel cutting, under various test parameters, a result which was considered to be a good reflection of the suitability of the ORC material. Currently, it is estimated that the domestic production of garnet for the waterjet market is 70,000 tpa, and is expected to grow by 10% each year.



Compared to South African material, the Oregon sands are much rounder, giving a chromite foundry sand extra strength when used in heavy castings.

Courtesy Daryl Hoyt, senior consultant to ORC.

Future plans

ORC is currently completing the delineation of a drilling program to upgrade additional mineral reserves currently classed as probable, into the proven category. Much of this work will involve infill drilling between existing drill holes. Results from this project are expected to confirm the depth of ore mineralisation, and enable the resource calculations to be increased.

It is hoped that a pilot plant for the proven reserves will be in operation by November-December this year with a full scale operation, and marketable products, by mid-2006.

