

The Vermelho Nickel Deposit: new perspectives

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The Vermelho Nickel Deposit, part of Carajás Mineral Province, is located next to Canaã dos Carajás (Pará State), being 50 km to the Southeast of N4 iron mine that is connected by railroad to São Luis Port.

The nickel deposit embraces the V1 and V2 hills that are part of a mafic-ultramafic NE-SW complex, almost 2,5 km wide and 5 km in extension. The orebodies found in the weathering profile developed on the ultramafic rocks, are divided from the top to the bottom in: ferruginous saprolite, siliceous saprolite and saprolite.

Until 1996 the Vermelho Nickel Project was under evaluation by CVRD that was planning a production of 30.000 t/y of Fe-Ni alloys with a 25% Ni content (pirometallurgical). Unfortunately, results from pitting and drilling indicated total saprolite ore resources of 21 MT @ 1,70% Ni, which was not enough to support a feasible project.

In 1998, additional exploration work defined resources with good metal content to produce Ni and Co using a high pressure acid leach process (hidrometallurgical) integrated with a refinery (225 MT @ 1,03% Ni, 0,08% Co, 39,93% Fe₂O₃, 5,13% MgO and 38,10% SiO₂). In 1999, Dynatec Corporation conducted three batch tests on the ferruginous saprolite ore aiming to establish the degree of metal leaching under various P-T conditions. These preliminary tests attained excellent results, turning the Vermelho nickel laterites into a World Class Deposit of that kind.

The next steps to implement the economics of Vermelho Nickel Deposit are: complementary drillhole program; screening tests to increase the Ni and Co grades by removing the coarse silica fraction; pit optimisation and the conceptual project.