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## Development of Superconducting MgB<sub>2</sub> Wires

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The Magnesium Diboride (MgB<sub>2</sub>), is a material known since early 1950's, but, whose superconducting (SC) properties were defined in 2001, positioning this as a High-Temperature superconductor material (T<sub>c</sub>= 39-40 K). The absence of weak-link and the simple crystalline structure allows to produce wires using the powder in tube (PIT) technique, allowing the industrial development and application. Currently, the MgB<sub>2</sub> wire technology is making a significant progress, due to the continuing research and industrial development. Nowadays, the MgB<sub>2</sub> is a good candidate to replace NbTi in liquid helium-free magnetic resonance imaging (MRI) magnet. In addition, the MgB<sub>2</sub> is used in rotating electrical machines, wave-energy converters and in high current cables for powering devices. Columbus MgB<sub>2</sub> wire unit (ASG Superconductors Spa), is working into improve the uses and performance of the MgB<sub>2</sub> and MgB<sub>2</sub> wires production, using a technology, which allows to produces MgB<sub>2</sub> multi-filamentary wires with unit length exceeding 2-4km in a single piece. In order to obtain and qualify a high performance Mgb<sub>2</sub> wire, in Columbus, it is carrying out the characterization of MgB<sub>2</sub> wires, through SEM, mechanical Test, critical current analysis, critical temperature and residual-resistance ratio (RRR) Test.

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