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Improved Steels through Green QPQ Surface Modification

Thermomechanical quench-polish-quench (QPQ) surface modification—using waste, rather than the traditional cyanide-based environment—on different types of steel, to increase resistance to corrosion and abrasion.

Competitive advantage

- Surface modification can be customised and is environmentally friendly
- This new surface modification technology outperformed any other traditional nitriding or plating of steel and will increase both its corrosion and abrasion resistance
- An innovative and effective way to produce steel components with enhanced properties at low cost

Impact

- This innovative and economical new approach marries industry demands for more cost-effective, durable steel products with global imperatives to address resource depletion and environmental degradation, through the recovery of resources from waste.

Successful applications

- Formation of ultrahard surface on normal carbon steel increasing its compression strength by 30 percent and its hardness by 40 percent

Capabilities and facilities

- The Centre for Sustainable Materials Research and Technology (“SMaRT”) is an internationally recognised pioneer in the transformation of complex waste into value-added resources, such as turning waste glass or textiles into high performance building applications, or using waste rubber tyres to produce Green Steel
- Purpose-built state-of-the-art laboratories
- Specialist furnaces

More Information

Laureate Scientia Professor Veena Sahajwalla

School of Materials Science and Engineering

T: +61 2 9385 6432
E: veena@unsw.edu.au

Dr Farshid Pahlevani

School of Materials Science and Engineering

T: +61 2 9385 4433
E: f.pahlevani@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61(2) 9385 5008