



TGS7 “Steel Products and Applications for Automobiles, Packaging and Home Appliances”

Panorámica y oportunidades en la Investigación e Innovación Siderúrgica en Europa

Madrid, 25-09-14



PLATAFORMA TECNOLÓGICA ESPAÑOLA DEL ACERO

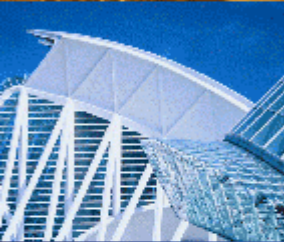
Proyecto: INF – 2013 – 0162 – 020000, financiado por:



Technical Content of the Steel TGS7



- Technologies relating to the forming, cutting, welding and joining of steel and other materials
- Design of assembled structures to facilitate the easy recovery of steel scrap and its re-conversion into usable steels and techniques for recycling
- Steel-containing composites and sandwich structures
- Prolonging service life of steel products
- Standardisation of testing and evaluation methods



Ongoing Projects Scope – TGS7



1. Technologies relating to the forming, cutting, welding and joining of steel and other materials
2. Design of assembled structures to facilitate the easy recovery of steel scrap and its re-conversion into usable steels and techniques for recycling
3. Steel-containing composites and sandwich structures
4. Prolonging service life of steel products
5. Standardisation of testing and evaluation methods

*RFCS Projects with Spanish partners

PROJECT (12)	MAIN TOPICS
DURA1DH	4
ENFASS	1
AUTOFATCOR	4
STEELTAC	4
TESTTOOL	5
MAC D	4
TWIP4EU	1
STT	1
GPHS	2
NEWGENHHS	1
INCAFAT	4
FREQTIGUE	5

Research Guidelines Proposed by Experts



Theme	Subject
New steels & process route	<ul style="list-style-type: none">- Automated material characterization for machinability- Innovant Stainless Steel for exhaust components- Green press hardening steel grade- Steel design for high machinability steel- New generation of Hot dip galvanized HSS with extra formability
Manufacturing	<ul style="list-style-type: none">- Tool die design & spring back compensation- Enhanced formability assessment of AHSS- Steel sheet with enhanced tactile feel- Wear meast to increase efficiency in hot stamping- Cost effective 3D-bent of HSS tubes and profiles- Residual formability of preformed& welded HSS
Structural behavior	<ul style="list-style-type: none">- Self repair thin functional primers- Durability of adhesive bonded in corrosive environments- Corrosion of heterogeneous assembly, galva steel sheet / Al or Mg sheets- Combined corrosion & fatigue strength

Steel Priorities 2014



- 1 • Improved energy efficiency in high temperature processes
- 2 • Integration of process monitoring (online/offline), control and technical management of steel production using mathematical methods for a multi-criteria optimisation of steel production with respect to at least two of the following aspects: productivity, resource efficiency and product quality
- 3 • New or improved efficient processes to transform low quality primary raw materials
- 4 • **Solutions at minimizing the ecological footprint of the Steel**
- 5 • **Measurement and on-line control of mechanical properties, through either new measurement techniques or improved physical models**
- 6 • **Development of new steel grades with improved technological property combinations (e.g. strength, formability, toughness, etc.) enabling more efficient steel applications (e.g. weight reduction, energy absorption, thermal shock resistance, wear...)**
- 7 • **Steel solutions for transport, construction or energy with improved LCA**
- 8 • Safety of steel infrastructures for fluid storage and transportation in energy sector
- 9 • **Improvement of working conditions in steel production through innovative solutions by use of both modelling and monitoring activities linked to health or safety aspect risk management**

Steel Industry Future Trends – TGS7



- Future R&D vs. Steel market development trends of TGS7 are related to steel solutions for:
 - Innovation
 - Energy efficiency and CO2 emission reduction
 - Lower cost for final product
- Orientation for new TGS7 projects:

■ Research projects to promote (1/2)

Steel in final product

Product Function

Weight & structural behaviour
simulation
& validation testing

Cost analysis

cost hypothesis
vs competitors

LCA

Manufacturing

simulation and
prototyping in
industrial context

■ Research projects to promote (2/2)

Manufacturing with steel

Modelling

Numerical
strategy

Industrial applicability

Cost analysis
guide lines, data base
knowledge dissemination

LCA

Experimental features

Characterisation
& validation



Muchas gracias por su atención

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