



TGS3 "Casting"

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:



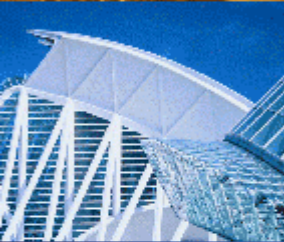
Technical Content of the Steel TGS3



- Continuous casting and near net shape casting techniques
- Ingot casting
- Chemistry and physics of solidification
- Maintenance and reliability of production lines
- Reduction of emissions, energy consumption and improvement of the environmental impact
- Standardization of testing and evaluation methods
- Instrumentation, modelling and control of processes



Ongoing Projects Scope – TGS3



1. Continuous casting and near net shape casting techniques with or without direct rolling for flat and long products
2. Chemistry and physics of solidification
3. Ingot casting
4. Maintenance and reliability of production lines
5. Reduction of emissions, energy consumption and improvement of the environmental impact (... By-deliverable...)
6. Standardisation of testing and evaluation methods
7. Instrumentation, modelling and control of processes

PROJECT (9)	MAIN TOPICS
DDT	7, 1
IPTINGOT	3
KINPCC	2
FOMTM	7
PMAP	3
INNOSOLID	2, 7
ICCRACK	7, 1
NDTSLAB	7, 6, 4
GRAMAT	2, 3

*RFCS Projects with Spanish partners

Research Guidelines Proposed by Experts



Link continuous casting and rolling process as much as possible

Diminishing or enhanced controlling transitory steps and unsteady-state phenomena

Enhancing quality assurance and standards

Energy consumption & emissions rate

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 • Development of 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 – TGS3



Casting
Process

**Quality assessment and
improvement**
New steel grades



Instrumentation

Methods of diagnosis
Increase automation



Casting Plant
Management

Production flexibility
**High productivity & low running
cost**
Energy consumption



Muchas gracias por su atención

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GERDAU



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