TGS3 “Casting”

Panorámica y oportunidades en la Investigación e Innovación Siderúrgica en Europa

Madrid, 25-09-14

PLATEA

PLATAFORMA TECNOLÓGICA ESPAÑOLA DEL ACERO

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

GOBIERNO DE ESPAÑA MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD

UNESID Unión de Empresas Siderúrgicas

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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