

Standardization in Practice: Towards a CEN-CENELEC Workshop Agreement **FORMPLANET and TOUGHSTEEL projects**

Javier LÓPEZ-QUILES (UNE)

UNE



TOUGH STEEL

projects



Standardisation
results



Process

UNE FormPlanet project



**Sheet metal forming
testing hub**

<https://formplanet-project.eu/>

Overview

- **Funding:** European Union's Horizon 2020 programme.
- **Duration:** 3 years, from 1/01/2019 to 31/12/2021
- **Consortium:** 16 partners from 5 different European countries
- **Coordination:** Eurecat, RTO
- **Grant agreement ID:** 814517

UNE FormPlanet project



Objectives

To develop and demonstrate an integrated ecosystem (Test Bed) offering **novel testing methodologies to:**

- characterize sheet material properties,
- predict part performance and
- prevent production losses,

to the sheet metal forming industries to tackle the upcoming challenges in formability and part quality assessment.

Expected impacts

Contribute to assure **zero-defects production** and optimize sheet material development, production and performance for the sheet metal forming industries.

UNE ToughSteel project

TOUGHSTEEL

Fracture toughness as a tool to address cracking problems in forming and in-service performance of AHSS

<https://toughsteel.eu/>

Overview

- **Funding:** Research Fund for Coal and Steel (RFCS) within the Horizon 2020 programme of the European Union.
- **Duration:** 2 years, from 1/07/2021 to 30/06/2023
- **Consortium:** 8 partners from 4 different European countries
- **Coordination:** Eurecat, RTO
- **Grant agreement ID:** 101034036

Objective

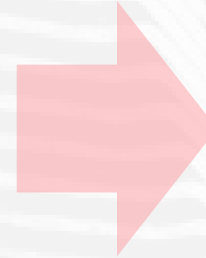
To **promote and transfer the know-how** acquired about the use of fracture toughness as a tool to address cracking problems in forming and in-service performance of AHSS.

Expected impacts

Contribution to **improve efficiency and competitiveness** of sheet metal forming processes involving high-strength steels by the prevention of production losses and the reduction of production costs and time-to-market for sheet products in automotive and other industrial end-user sectors.

Why standardisation?

- ✓ To **disseminate** the project findings and results
- ✓ To facilitate the **acceptance and implementation** by the market of the knowledge gained
- ✓ **Gaps found** in related existing standards
- ✓ **No existing standards** concerning fracture toughness for thin metal sheets or AHSS
- ✓ Interest in assuring the **reliability and quality** of the test procedures and results, and thus providing confidence to users



CONSORTIUM DECISION TO:

- Propose the **REVISION** of existing standards
- **DEVELOP** new standards (CWAs)



CEN/WS FormPlanet

Innovative testing in support of the sheet metal forming industry

Consortium participation: 6 partners of 16

External to consortium participation: 1

CEN/WS ToughSteel

Fracture toughness evaluation methodologies applied to advanced high strength steel sheets

Consortium participation: 3 partners of 8

External to consortium participation: 3



Development of standards (CWAs)

- **CWA 17793:2021** Test method for determination of the essential work of fracture of thin ductile metallic sheets
- **CWA 17794:2021** Measurement of diffusible hydrogen in metallic materials - HELIOS 4 HOT PROBE method

Development of standards (CWAs)

- **CWA 18011:2023** Guidelines for the evaluation of the plane stress fracture toughness of advanced high strength steel sheets in the frame of fracture mechanics
- **CWA 18012:2023** Test method for the determination of a cracking resistance index for advanced high strength steel sheets



Proposals to review standards

- Proposal to review ISO 17081:2014 for ISO/TC 156
- Proposal to review ISO 16630:2017 for ISO/TC 164/SC 2

Proposals to upgrade standards

- Proposal to convert the CWAs into ISO standards (*in study*) for ISO/TC 164



Deliverable D1.2

Test methodologies to determine fracture toughness in thin and thick sheets



CWA 17793:2021

“Determination of fracture toughness in thin metal sheets”

Task 3.3

Industrial on-line diffusible H measurement

Adaptation



CWA 17794:2021

“Measurement of diffusible hydrogen in metallic materials – HELIOS 4 HOT PROBE method”

Subtask 4.4.1

Transport BiW or chassis part / AHSS

Deliverable D2.1
User guideline



CWA 18011:2023

“Guidelines for the evaluation of the fracture properties of AHSS in the frame of fracture mechanics”

Adaptation

**Eurecat's
research on
cracking
resistance**



CWA 18012:2023

“Test method for the determination of a Cracking Resistance Index (CRI) in AHSS sheets”

Task assignment

WORK TYPE	TASK	RESPONSIBLE
MAIN WORK	<ul style="list-style-type: none"> ▪ Adaptation of existing documents 	Deliverable/Task responsible
	<ul style="list-style-type: none"> ▪ Editorial review and editing 	UNE
	<ul style="list-style-type: none"> ▪ Publication 	CEN
SUPPORTING WORK	<ul style="list-style-type: none"> ▪ Review and comment CWA drafts when circulated 	All partners
	<ul style="list-style-type: none"> ▪ Take part in approval decisions 	

Task schedule

Table 1: Workshop schedule (preliminary)

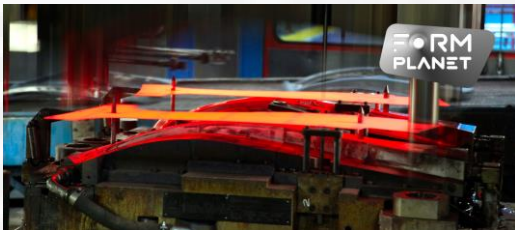
CEN/CENELEC Workshop	M01 JUN 22	M02 JUL 22	M03 SEP 22	M04 OCT 22	M05 NOV 22	M06 DEC 22	M07 JAN 23	M08 FEB 23	M09 MAR 23	M10 APR 23
Initiation										
1. Proposal form submission and TC response										
2. Project plan development										
3. Open commenting period on draft project plan (mandatory)										
Operation										
4. Kick-off meeting										
5. CWAs development										
6. Open commenting period on draft CWA(s) (optional)										
7. CWAs finalised and approved by Workshop participants										
Publication										
8. CWAs publication										
Dissemination (see 7)										
Milestones										

- K** Kick-off
- M** Workshop meeting
- V** Virtual Workshop meeting
- A** Adoption of CWA
- P** Publication of CWAs
- D** Online distribution of CWAs



Involve partners in standardisation activities

Take advantage of partial project results



Clear and known responsibilities and schedule

**Thank you very much for
your attention!**

Javier LÓPEZ-QUILES
Spanish Association for Standardisation - UNE
jlopezquiles@une.org