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NPTEL

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Courses » Welding of Advanced High Strength Steels for Automotive Applications

Announcements

Course

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Unit 6 - Week 4

Course outline

How to access the portal

Pre-requisite Assignment

Week 1

Week 2

Week 3

Week 4

- Quiz : Assignment 4
- Microstructural Evolution During Welding of Advanced High Strength Steels
- Elemental Behaviour During Welding of Advanced High Strength Steels
- Quantification of Microstructural Constituents in Automotive Steel Welds Part - I
- Quantification of Microstructural Constituents in Automotive Steel Welds Part - II and Mechanical Properties
- Methodologies to Improve the Weldability of Advanced High Strength Steels

Assignment 4

The due date for submitting this assignment has passed. **Due on 2018-09-26, 23:59 IST**
As per our records you have not submitted this assignment.

- 1) In aluminium containing advanced high strength steels, which metallurgical reaction occurs first when the weld pool is formed ? 1 point
- δ -ferrite stabilisation
 - formation of oxide inclusions
 - acicular ferrite formation
 - austenite formation
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
formation of oxide inclusions
- 2) δ -ferrite gets stabilised in fusion and grain boundaries in TRIP steels welds by 1 point
- silicon enrichment
 - carbon enrichment
 - aluminium enrichment
 - manganese enrichment
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
aluminium enrichment
- 3) The primary nucleation sites for acicular ferrite is 1 point
- fusion boundaries
 - ferrite grain boundaries
 - martensite lath boundaries
 - non-metallic inclusions.
- No, the answer is incorrect.**
Score: 0
Accepted Answers:
non-metallic inclusions.
- 4) Which (one) of the following element(s) is/are known to minimise phosphorous segregation at the weld centre line ? 1 point
- Boron
 - Manganese
 - Rare earth elements
 - Hydrogen.

○ Week 4
Feedback :
Welding of
Advanced High
Strength Steels
for Automotive
Applications

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No, the answer is incorrect.

Score: 0

Accepted Answers:

Boron

5) Which (one) of the following element(s) diffuse(s) out of liquid to solid during solidification of TRIP steels ? **1 point**

- Carbon
- Phosphorous
- Sulphur
- Aluminium.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Aluminium.

6) Which (one) of the following microstructural constituents in steels is/are paramagnetic at room temperature ? **1 point**

- Ferrite
- Martensite
- Austenite
- Non-Metallic Inclusions

No, the answer is incorrect.

Score: 0

Accepted Answers:

Austenite

Non-Metallic Inclusions

7) When the retained austenite fraction increases, the saturation magnetisation of TRIP steels **1 point**

- decreases
- do not change
- increases
- increases exponentially.

No, the answer is incorrect.

Score: 0

Accepted Answers:

decreases

8) The width of heat affected zone (HAZ) in welded TRIP steels is in general larger than conventional steels because of **1 point**

- Pearlite formation
- Oxidation during welding
- decomposition of retained austenite
- Vaporisation.

No, the answer is incorrect.

Score: 0

Accepted Answers:

decomposition of retained austenite

9) Softening of heat affected zone in welded DP steels is due to **1 point**

- Spheroidisation of pearlite
- Tempering of Martensite
- Formation of Martensite
- Retained austenite.



No, the answer is incorrect.

Score: 0

Accepted Answers:

Tempering of Martensite

10) Double pulsing resistance spot weld thermal cycle improves the mechanical properties of the welds by **1 point**

- changing the primary weld nugget size
- homogenising elemental segregation
- expulsion
- key-hole formation.

No, the answer is incorrect.

Score: 0

Accepted Answers:

homogenising elemental segregation



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