

Important note from our Technical Committee 9 – Manufacturing and Erection Standards

(Chairman: Kjetil Myhre) held on 16 March 2015 in the ECCS offices in Brussels:

WELDABILITY ISSUES WITH IMPORTED STEELS

ECCS recommends to be very careful to the chemistry of imported steels, and to check the limits for alloy steels that can be found in EN 10020 (Definition and classification of grades of steel).

During TC9 meeting, ECCS has been alerted that some imported non-alloy steel plates and sections, containing a too high amount of Boron and Chromium, are entering the European steel supply chain. These imported steels are defined as non-alloy steels. But, to be qualified as a 'non-alloy structural steel' in accordance with EN 10025-2, limits of EN 10025-2:2004 Table 2 prevail and the qualities of elements not defined in this standard must comply with the strict limits given in EN 10020, Table 1. So these steels should be classified as 'Alloy steel' rather than 'non-alloy steel'. The limits for Boron and Chromium defined in EN 10020 are given in the table below.

Limit values of Boron and Chromium

Specified Element	Limit value (% by mass)
Boron (B)	0.0008
Chromium (Cr)	0.30

The main concern is that adding these elements at levels above the limits given in EN 10020 **can significantly affect the properties of the steel during/after welding:**

- Boron levels over 0.0008% by weight significantly increases the hardenability of the steel, which when welded makes the Heat Affected Zone (HAZ) prone to cracking;
- Similarly Chromium at levels above 0.3% by weight can drastically increase cracking in the HAZ. Furthermore, **the cracks may not be evident until 48 hrs after welding.**

Note that steels with high levels of Boron and Chromium can be welded provided an appropriate welding procedure is used; guidance may be obtained from a qualified welding engineer.

Cécile Haremza, 23/07/2015