Recommended Practice for Preproduction Qualification for Steel Plates for Offshore Structures

API RECOMMENDED PRACTICE 2Z
FOURTH EDITION, SEPTEMBER 2005

REAFFIRMED, SEPTEMBER 2020

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Upstream Segment

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FOREWORD

This Recommended Practice is under jurisdiction of the API Subcommittee on Standardization of Offshore Structures.

The purpose of this recommended practice is to provide recommendations for the pre-production qualification of steelmaking procedures for steel plates for use in welded offshore structures.

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1 Introduction

1.1 PURPOSE

The purpose of these recommendations is to provide the purchaser with information which can be used to minimize the amount of time and testing necessary to prepare and certify fabrication welding procedures (and to assure that the steel to be supplied is inherently suitable for welding) with particular attention to fracture toughness and resistance to cracking of the heat affected zone. It is presupposed that welding procedures suitable for the demonstrated capabilities of the steel and intended service will be separately developed.

1.1.1 The specific testing required shall be that described in either Section 3 or 4 or both, as specified in the purchase order.

1.1.2 Demonstration of conformance to the recommendations of this practice qualifies a particular mill to produce steel manufactured to the specific chemical composition range, melting practice, and processing practice for which conformance was established. The qualification is applicable to all orders for material produced under the conditions qualified.

1.1.3 A significant change in chemical composition or processing practice that could be detrimental to either weldability or toughness shall require either a separate full qualification (for major change) or an abbreviated re-qualification (for minor change), as described in Section 5.

1.1.4 Prior qualification may be accepted for the fulfillment of the recommendations of this practice. Testing to a wider range of heat input, higher CTOD values, or lower test temperatures is encouraged and shall be deemed to satisfy the minim recommendations of this Practice.

1.2 SCOPE

This Recommended Practice covers requirements for Preproduction qualification, by special welding and mechanical testing, of specific steelmaking and processing procedures for the manufacture of steel of a specified chemical composition range by a specific steel producer. This is a Recommended Practice for material selection and qualification, but not for the performance of production weld joints. This Recommended Practice was developed in conjunction with, and is intended primarily for use with, API Specifications 2W and 2Y. However, it may be used as a supplement to other material specification s (e.g., API Specification 2H) if so desired.

1.3 GENERAL REQUIREMENTS

1.3.1 Unless otherwise specified, the testing recommended by this practice need only include material from a single heat of steel produced to the specific range of chemical composition to be qualified.

1.3.2 The plate processing, welding, and testing shall be conducted by or under the control of the steel producer, but shall be witnessed by a third party or a representative of a purchaser.

1.3.3 The test results, together with a detailed description of the processing of the steel, shall be documented by the producer and a copy provided to the purchaser. It is not intended, however, that proprietary information be included in the documentation. It is intended that the steel producer's "know-how" shall remain confidential. It is necessary, however, that sufficient information be included in the documentation package so that a purchaser can confirm at a later date that all essential procedures are being followed. At the very least, the manufacturer's process shall be designated by a code number or designation sufficient to provide traceability of process variables.

1.3.4 The chemical composition of the steel, as determined by heat analysis, shall conform to the requirements of the applicable industry standard under which it is to be produced. Within these typically broad limits, the steelmaker shall nominate the aim chemical composition and working range which define limiting essential variables for which the Preproduction qualification may be assumed to remain valid.

Tests conducted on any one heat shall qualify subsequent production heats described in Section 5.