

API Ballot Submission Template (Rev 2)

(All ballot submissions must be in electronic format – Microsoft Word or equivalent)

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Ballot of API 6ACRA 2nd Edition, Addendum 1.

Section		Proposed Change	Rationale
1.1	Scope	Reference to IOGP document 679 for guidance.	Added to warning statement to provide guidance on assessing the threat of hydrogen charging and hydrogen embrittlement/HISC. Details requirements for qualification, where the users threat assessment indicates a risk.
2	Normative references	Add IOGP 679.	See above.
3.2	Abbreviations	Add HISC.	As referenced with IOGP 679.
4.1.4	Homogenization and Hot Working Requirements	Add requirement for homogenization step.	Homogenization is a critical step in how these alloys are manufactured and all raw material producers do this as a standard practice. It had not been documented as a requirement, so this addressing that.
4.1.5.1	Production Heat Treating Equipment	Add furnace class requirements.	Furnace classes were not part of the document. Added to align with API 6A.
4.1.5.2	Temperature Monitoring	Add ER requirements for heat sinks and thermocouple placement.	Added to make sure that the heat sink dimensions are representative of the load in the heat treatment lot. Documenting that contact thermocouple placement shall be on the largest ER location.
4.1.5.3	Solution Annealing and Age Hardening	Add maximum difference in ER in furnace load.	To make sure that the variation in ER in the furnace load is not too large, so that it could result in significantly different response to heat treatment on of the largest versus the smallest ER.
4.2.2.2	Grain Size Evaluation	Table created to add clarity to duplex grain size requirements. Further additional requirements on random duplex grain size conditions with max size allowed for individual grain in	The change is to provide clarity on grain size requirements. Based on input from some task group members on having some defined limits for random duplex grain size distributions a small task group was set up to identify possible additional requirements such as max individual grain size, the maximum permitted difference between grain sizes. This proposal worked in the small task

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		ALA condition, and max grain size difference allowed for wide range, bimodal conditions.	group with consensus from the raw material producers and forging suppliers on what they can achieve during typical commercial production with best practices used was presented to the full task group where consensus on the final proposal was attained.
5.0	Certification	Added example of how to report grain size requirements for ALA, wide-range and bimodal.	Added example of how to report grain size requirements. The consensus was that it would provide a benefit on how to report in certification
Annex B	Modifications of Existing CRAs and/or Material Designations	Reference to IOGP document 679 for guidance.	Added to warning statement to provide guidance on assessing the threat of hydrogen charging and hydrogen embrittlement/HISC. Details requirements for qualification, where the users threat assessment indicates a risk.