



CQI-9, Rev.3 Audit Report for Bodycote Kitchener

Supplier Name	BODYCOTE THERMAL PROCESSING CANADA INC.	Code and/or Tier Level:	Commodity:	Date:	October,18,2012
		Tel.-Nº:519-744-6301	Heat treatment	Organization /Region:	Conform to CQI-9 Y / G / R
Location & Country	9 Shirley Avenue, Kitchener, ON N2B 2E6	Heat Treat Process:	Specialty:	Visit Report ID:	G 20121810

REASON FOR VISIT	Participants	Indicate areas of non compliance to	
X	CQI-9	CQI-9 or Assessment	
	Louise Lalonde , Quality Manager, email : louise.lalonde@bodycote.com	Sec 1. Management	Process
	Ron Prattis, Plant Manger, email : ron.prattis@bodycote.com	Sec 2. Floor	Laboratory
	Tariq Mahmood, Quality Engineer , email : Tariq.mahmood@bodycote.com	Sec 3. Equipment	Incoming
	Longsi Li, Metallurgist, email : longsi.li@bodycote.com	Process Table	Samplirig
		Other (see text)	Packaging
If Box(s) are ticked the Supplier must,			
within 15 days submit a written			
timed corrective action plan			

Part Number	Part Name	Engineering Level

Purpose of Visit- Evaluate Bodycote Thermal Processing, Kitchener to the requirements of CQI-9, 3rd edition ,10/2011

Observations- During a wall to wall review of the plant to familiarize the writer with the plant operations, the plant manager & Quality Manager showed the process flow, material handling, shipping and receiving, documentation, lab facilities, maintenance and quality control.

Section 1: Management Responsibility and Quality Planning- Bodycote Kitchener , BK, presented evidence of the qualifications of their Quality Manager and various supervisors to meet the requirements of 1.1 (Evidence Organization chart KIT 097 rev.9). Bodycote uses the APQP procedure with evidence presented (1.2). Process Flow diagram for Ready Rivet PFD # 19, dated 9/26/2011. PMEA # 19 and Control Plan # 19 were reviewed, found to be in-depth from receiving to shipping. Heat Treat related references are kept current with a person responsible to ensure this action . Reviewed annually, document KIT 135 including standards in labscope.1.5). Bodycote Kitchener uses Navigator which generates shop order in which all the process steps are defined including racking instruction (1.6). Capability studies were available for review, Evidence : Confirmed for AFC 3,2, 1 & 4. (1.7). The plant collects and analyzes data on the process being used on a continuous basis. Items such as 3 gas analysis, quench oil analysis. (1.8). Evidence of management signoff/review was found for the plant processes (KIT 552) . Last self assessment was completed on Jan13,2012 (1.10). Reprocessing is either authorized by the Customer or by the Quality Manager , Evidence – email from Trim master Mfg, Part no. 3269441 Rev.j dated July,24,2012 (1.11). Questions 1.12,1.13, were reviewed without question. Documents and procedures were reviewed regarding question .1.15 , 1.16 were confirmed during job audit and found no issues. Question 1.16 – Training matrix does exists , confirmed for Tariq Mahmood dated Oct.,16,2012. Questions 1.17, 1.18 reviewed without questions. Documents and procedures were reviewed. No issues observed. Question 1.20 is not applicable.

Section 2: Floor and Material Handling Responsibility- Bodycote uses the customers provided Lot# on its Shop Order when received, documents were reviewed for completeness (2.1). A Receiving Control Report is generated for each parts/lot of material with a copy of the RCR traveling with the material thru the process (2.2-2.3). The plant maintains a Locked Crib with parts identified as non-conforming when required (2.4). The plant has work instruction SSWI 101, Rev o and step.1 of shop order (no. 105962) addresses the trap points and mixed parts issue. Furnace loading parameters are maintained and loading rate specified and verified per (2.7-2.9). Processed parts are shipped in customer supplied bins with the customer informed if product is received heavy (2.9). The plant work area was generally found to clean and organized , and parts were processed and those reviewed clean and dry, oiled when required (2.10-2.11). Questions 2.12-2.15 reviewed with-out question or comment. Product test equipment was reviewed and found to be calibrated and identified as such at the required frequencies, Evidence Calibration sticker RCK5 1020, calibration date Aug,22,2012, Due Date Nov,30,2012 (2.16).

Section 3: Equipment- Plant furnaces, generators and quench systems were found to have temperature indicators,, and computer recorded data (3.1). BTB follows published procedures for the calibration and purchase of thermocouples and calibrated as required by independent contractors, along with the replacement of thermocouples and protection tubes (3.2-3.3). Questions 3.4-3.5, were reviewed and found acceptable to the requirements. Furnace alarms are checked quarterly and recorded as such, Evidence : KIT717 for AFC4 dated July,03,2012 (3.6). Generators and Furnace atmosphere are continuously monitored using O₂ probes for carbon potential and gas analyzers are used daily to verify the functionality of O₂ probes and actual carbon potential (3.7-3.8). All furnaces are equipped with Ammonia Quick Disconnects, verified, and disconnected when carbonitriding is not required. The plant has a procedure BMS WI 09.09.03, item 7.2.4 regarding burnout requirements (3.10). Flowsopes were seen on Atmospheric furnaces and generators. Flowsopes are checked daily for proper operation and cleaned annually (3.11). Not applicable. (3.12). Quenching medium (oil) is analyzed quarterly as required (3.14). Questions 3.13, 3.15-3.21 did not apply to this location.

	Rajiv Mehta	
	Audited By , Quality Manager, Metallurgist, P, Eng.	Name/Signature: 08.23.12 Mail address: Bodycote, Newmarket

Section 4 - Job Audit

Job Identity: HARDENING AND TEMPERING
Customer: Ready Rivet & Fasteners Ltd.
Shop Order Number: 105962
Part Number: HTT4300012FL501 Rev.4
Part Description: Pin - Latch
Material: AISI 1038
Heat Treat Requirements: HRC 30/35

Question #	Job Audit Question	Related HTSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
4.1	Are contract review, advance quality planning, FMEA, control plans, etc., performed by qualified individuals?	1.2 1.3 1.4 1.17	Customer and Internal both	Specification collection and engineering review. Verification of Special characteristics, processing and testing, Feasibility review, Process Flow chart, FMEA & Control Plan & Customer Specific Review	PFD , Control plan and FMEA dated 9/26/2011	P
4.2	Does the heat treat facility have the customer specifications for the part?	1.5	Customer and Internal both	Specification Document (Part Drawing)	Part Drawing (Part HTT4300012FL501 rev.4)	P
4.3	Is a shop traveler created to meet customer requirements?	1.6 2.1	Internal	Shop Order	Shop Order # 105962	P
4.4	Is material identification (part numbers, lot numbers, heat numbers, contract numbers, etc.) maintained throughout the heat treat process?	2.2 2.3 2.4	Customer and Internal both	Shop Order, locator, Daily Production Log	Yes, the part moves to each operation along with the shop order which has all the details like P.O no., lot no. etc.	P
4.5	Is there documented evidence of Receiving Inspection?	2.1	Internal	Shop order	Yes, while receiving a RCR is created and this RCR no. appears on shop order when created	P

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4.6	Are the Loading / Racking requirements identified?	1.6 2.7 2.9	Internal	Shop Order	Yes, shop order no. 105962 was having the racking instructions defined (in two baskets upto certain height)	P
4.7	Is the proper recipe or process specification (cycle times, temperature, atmosphere, etc.) used? Refer to Process Tables, Section 3.0, for specific parameters. List parameters that were verified in this audit in the spaces provided below.	1.5 1.6 2.1 2.14 2.15	Internal	Shop Order	Shop Order # 105962	P
		A3.1 , Furnace Temperature	Internal	Shop Order for the setting and Process Parameter, Computer Record	Shop Order # 105962, production log and temp. recording	P
		A3.3 Furnace Atmosphere	Internal	Shop Order for the setting and Process Parameter, chart for the record	Shop Order # 105962, production log and temp. recording	P
		A3.4 Primary atmosphere control method by back-up method	Internal	Primary Atmosphere control using O2 Probe, Back-up by 3 gas analyzer and dewpoint test	KIT 552 2 hour furnace check sheet does have record of 3 gas analysis and dew point.	P
		A3.6 Quench Media				

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Question #	Job Audit Question	Related HTSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
		(A) Oil Temperature	Internal	Shop order for setting Process parameter, production log	Production log	P
		(B) Quench Oil Level	Internal	Daily Checks	Oil level confirmed daily	P
		(C) Oil Agitation	Internal	Production log	Confirmed Production	P
		A3.7 Time in Furnace	Internal	Shop order for setting Process parameter, computer record to show time in the furnace	Shop Order # 105962	P
		A3.8 Load Size	Internal	Shop Order	Shop Order # 105962 2 " high bulk loading in two stack baskets	P
		Section 3.9 Quench Delay	N.A			

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4.8	What are the product inspection requirements?	2.15				
4.8.1	Requirement: (1)	Hardness : HRC 30/35				
	Test Method:	Surface Hardness	Customer	Refer Shop order	See Test Certificate	P
	Test frequency or quantity:	C.P and shop order	Internal	As per shop order	20 samples	P
	Selection of samples:	As per shop order	Internal	Refer shop order 105962	Inspection results reported confirms to sampling method in shop order	P
	Specification:					
4.8.2	Requirement: (2)					
	Test Method:					
	Test frequency or quantity:					
	Selection of samples:					
	Specification:					
4.8.3	Requirement: (3)					
	Test Method:					
	Test frequency or quantity:					
	Selection of samples:					
	Specification:					
4.8.4	Requirement: (4)					
	Test Method:					
	Test frequency or quantity:					
	Selection of samples:					
	Specification:					

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Operator or Inspector Responsibilities						
4.9	Were appropriate process steps signed off?	1.4 2.2 2.3 2.14	Internal	Shop Order	Shop Order # 105962, process steps were signed off.	P
4.10	Were all inspection steps, as documented in the control plan performed?	1.2 1.4	Internal	Shop Order and Test Certificate	Yes, shop order # 105962 and the certification.	P
4.11	Were steps/operations performed that were not documented in the control plan?	1.2 1.4 1.6	Control Plan CP # 19	C.P and Shop Order	No additional steps performed	P
4.12	If additional steps were performed, were they authorized?	1.2 1.4 1.6 1.11 1.17	N/A	-	-	-
4.13	Does the governing specification allow reprocessing or rework?	1.11	N/A	If rework is to be done customer approval required		P
4.14	If the order was certified, did the certification accurately reflect the process performed?	2.14 2.15	Internal	Shop Order and Test Certificate	Yes, Shop Order # 105962 Test Certificate # 68891	P
4.15	Was the certification signed by an authorized individual?	1.17	Internal	Test Certificate	Test Certificate # 68891, Yes	P
4.16	Are the parts and containers free of inappropriate objects or contamination?	2.6 2.11	Internal	As per instructions in shop order	Shop order # 105962	P

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Packaging Requirements						
4.17	Are packaging requirements identified?	2.9	Internal	-	Parts shipped in the same container in which received	P
4.18	Are parts packaged to minimize mixed parts (for example, parts packed over height of container)?	2.9	Internal	-	Parts shipped in the same container in which received	P
Shipping Requirements						
4.19	Were the parts properly identified?	2.3 2.9	Internal	-	Customer Supplied Tag and RCR slip stay with the bin	P
4.20	Were the containers properly labeled?	2.3 2.9	Internal	-	Customer Supplied Tag and Bodycote RCR slip stay with the bin	P