Ameritube LLC 1000 N. Hwy 77, Hillsboro TX 76645	**Revision Level: B**	**Procedure No. SOP 1001**
	Revision Date: 07/24/2014	**Page No. 1 of 5**
Receiving Inspection: Finished Product and Raw Material	**This Document expires one day after printing Last Printed: November 6, 2015**	

Date	***Description Of Change***	***Signature***	***Rev. Level***
07/24/2014	***Created***	***Andres Kim***	***A***
07/03/2015	***Revised – Added mechanical and chemical testing, Four phase inspection procedure, corrections to numbering system***	***Joseph Ravitsky***	***B***

Procedure Approval:	Title:	Date:
	Quality Manager	**07/03/15**
	Management Representative	**07/03/15**

1. PURPOSE

This document sets forth the receiving inspection procedure for raw material and finished product received by the company.

2. APPLICATION

This procedure applies to all personnel required to follow the procedure specifying the method of measuring and inspecting materials for materials received. This procedure concerns Production and Quality Assurance departments.

3. PROCEDURE

3.1. Scope and Responsibilities

3.1.1. It shall be the responsibility of the Quality Manager to insure the following:

3.1.1.1. That training and experience requirements are established.

3.1.1.2. All personnel properly trained in the Receiving Inspection.

3.1.1.3. That the inspection personnel training program is properly administered.

3.1.2 A (4) four phase inspection process is overseen by Quality Assurance:

3.1.2.1 Phase 1 Inspection: Inspection of documents. Each shipment has to be preceded by a shipment of the following documents:

3.1.2.1.1. Packing List
3.1.2.1.2. Quality Certificate (MTR)
3.1.2.1.3. Certificate of Origin
3.1.2.1.4. Any other documents requested by QC and Purchasing

All the documents have to be checked and available for Inspection. Incoming Inspection Report describing Inspection criteria established based on Purchasing Order and Quality Certificate. Report to be completed during inspection.

3.1.2.2 Phase 2 Inspection: Inspection of packaging, quantity and weight

3.1.2.1.1. Packaging integrity and conformance to Purchase Order and Packing List
3.1.2.1.2. Quantity according Packing List and Purchase Order
3.1.2.1.3. Weight according to Packing List and Purchase Order.

3.1.2.3 *Phase 3 Inspection*: Random Sampling will identify if the need for a thorough inspection will be necessary.

Sample inspection of material is defined as: Both ends of every tube in the current phase of production or finishing (where applicable). A (4) point check on the Outer Diameter (O.D.) of all material. A (4) point check of the wall thickness of all material. Inspection of the entire length of tube for deformities or tubing that has gouges in the depth of .02 mm which can measured by feeling an imperfection of the tube.

3.1.2.4 *Phase 4 Inspection*: 100% Inspection of material will be necessary if the sample of Phase 1 has found more than 50% non-conformance in the sample size.

100% Inspection of material is defined as: Both ends of every tube in the current phase of production or finishing (where applicable). A (4) point check on the Outer Diameter (O.D.) of all material. A (4) point check of the wall thickness of all material. Inspection of the entire length of tube for deformities or tubing that has gouges in the depth of .02 mm which can measured by feeling an imperfection of the tube.

4. Chemical and Mechanical Verification

4.1. Sampling Procedure – This sampling procedure follows the inspection process in 3.1.2.3, however, supplier notification and other methods / processes may be employed in lieu of 3.1.2.4 Inspection or to account for sample nonconformance.

4.2. Rockwell Hardness – A small sample is cut from the tube, approximately 1” - 2” length, the sample is then cut in half along its length to enable testing both the outside surface and inside surface by a qualified operator of the Rockwell hardness testing machine. The hardness test results are then compared to the typical readings expected for the temper of the tube. If the reading match the temper the tube is passed, if not, a non-conformance must be issued.

4.3. Sample Chemistry Verification – Prior to release of receiving product, quality manager and management must determine whether a random sample must be sent to an independent lab for verification of chemical composition and mechanical tests. All Ameritube purchase orders must provide for the option of Ameritube personnel to perform inspection at supplier site, perform inspection in US port, and/or have samples/coupons sent for chemical composition verification by third party laboratory. Inspection process in 3.1.2.4 may be done if necessary with XRF Analyzer for positive material identification (PMI).

4.4. Sample Mechanical & Physical Properties Verification - Samples may be cut from received tubes and sent to local testing laboratories in inspection process 3.1.2.3. Inspection process in 3.1.2.4 is prohibitively expensive and other methods can be employed to account for nonconformance or entire shipment must be rejected. This determination must be made by quality, the supplier and management.

5. DIMENSIONAL INSPECTION

5.1.1. Dimensional Inspection follows the two phase inspection process mentioned in 3.1.2

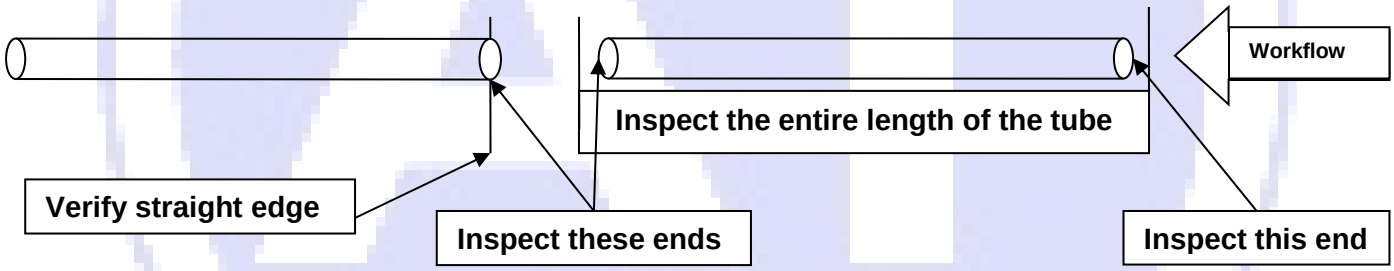
5.1.2. Verify all points at the end of tube is circular, is straight cut, and smooth.

5.1.3. Operator to verify proper tools per the work orders requirements

5.1.4. Prior to Annealing, Sample Inspection is applied to verify O.D. and Wall Thickness by means of Go / No Go micrometers, and the length will be measured by the means of a tape measure and work orders will have the specification requirements.

5.1.5. 100% Inspection of tube to be verified of the ends of the tube with Go / No go micrometers. Micrometer accuracy shall be $1/10^{th}$ the minimum allowable deviation of tolerance to verify wall thickness (i.e. tolerance +/- 0.005: accuracy allowance 0.0005). If micrometer readings fall above or below the allowable tolerance, the tube is rejected and the previous tube to be verified at both ends again, this will be documented on the Receiving Inspection Work Order and a photograph will be taken. Insert Go / No go micrometers into the cut end of the tubes to verify correct wall thickness. If the Go micrometer goes into the tube and the No go micrometer does not the tube is acceptable. If the Go micrometer does not go or the No go goes, the tube is rejected and the previous tube to be verified on both ends again. The ends of the tubes will be verified for a straight cut. The entire tube will be inspected to find deformities and abnormalities will be documented on the Receiving Inspection work order. See Table 1 below for details:

TABLE 1



6. Visual Inspection

6.1. Visual Inspection follows the inspection process mentioned in 3.1.2.

6.2. A visual inspection of product is preformed to ensure that all material is free from dents, dings, scratches, flaking, uneven cuts, straightening marks, correct line marking, and any other visual inspection requested by the customer.

7. Release of Receiving Product

7.1. Product is considered received if MTR, Chemical, Mechanical, Dimensional, and Visual Inspections are passed.

7.2. Product is prevented from passing on to the next processing stage before all specified in-process verification actions are completed with satisfactory result. Products that are released for further processing or use are identified with a positive inspection status. The operator must fill out the Non-Conformance Report for any product that has not passed receiving inspection.

8. Nonconforming Product

8.1. If a nonconforming product is identified, the operator/inspector labels the product with a QUARANTINED sticker or tag and prepares a product nonconformance report. Operators are prohibited from proceeding to repair a nonconforming product without first reporting to Quality Assurance.

8.2. Nonconformance reports are turned into quality for disposition.