Haygor Instrument & Company, Inc.

Serving The Petrochemical Industry For Over 25 Years

CHLORINE SERVICE CLEANING, INSPECTION, AND PACKAGING PROCEDURE

Prepared By: Allen Bishop	Document #: HIE CHL 1.E
	Date: May 24, 2013

Scope

The purpose of this document is to outline and describe the general requirements and procedures used at Haygor Instrument & Company, Inc. for cleaning, inspecting, and packaging of components, systems, and coriolis flowmeters used in liquid or gaseous chlorine service.

References

This procedure complies with Compressed Gas Association CGA G-4.1 standard and Haygor Chlorine Service Cleaning Procedures HIE CHL 1.D. Haygor Instrument may also make reference to and comply with customer specifications appropriate to the product upon request.

Qualified Personnel

Technicians are trained on site at our facility and undergo supervision during this procedure.

Clean Room

This cleaning procedure is performed in a designated Clean Room which is free of dust, oil mist, and other hydrocarbons.

Cleaning Agents

EnSolv-GCS® will be used as the cleaning agent for this procedure. EnSolv-GCS® is recycled and reused at our facility. Solvent Washer model SW8 uses a state of the art distillation process to reclaim the EnSolv-GCS®. The resultant contaminates are disposed of at an approved disposal site.

Pre-cleaning

Units are unpackaged from their original packaging and any parts that do not require cleaning are removed or isolated. Pre-cleaning is accomplished by grinding, wire brushing, blast cleaning, swabbing or a combination of the above.

Cleaning Process

Units are cleaned using EnSolv-GCS®. This process includes rinsing, flushing, and swabbing the areas which will be exposed to product. After processing, the unit is allowed to dry, and, if necessary, blown off with dry nitrogen before being inspected.

Inspection Process

Each unit is visually inspected under strong white light for the presence of large amounts of moisture, oils, greases, and accumulations of lint fibers. If acceptable, the parts are then inspected using ultraviolet (black light) examination in darkness, in the Clean Room. If the examination reveals no hydrocarbon fluorescence such as a blotch, blot, smear, or film then the unit is considered clean and passes inspection. If the inspection fails, showing

evidence of hydrocarbons, then unit will be re-cleaned starting with the pre-cleaning stage and re-inspected. The cleaning process will be performed until the unit is found acceptable and passes inspection.

Packaging

After each unit is cleaned and passes inspection it is labeled "Cleaned for Chlorine Service". Protective covers are cleaned and inspected using the above procedure and attached to the process connections.

If applicable, protective covers are cleaned and inspected using the above procedure and attached to the process connections. After labeling and protective covers are installed, the parts or assemblies are double bagged using 6 mil Polyethylene bag material, vacuum packaged, and heat sealed. Large assemblies with small external process connections or small diameter tubing are capped with cleaned plastic caps and sealed using heat shrink. Parts larger than 12" or assemblies with large external connections will be double bagged with 6 mil Polyethylene bag material and sealed using .0009" stretch wrap.

Upon request, Levosil® Desiccant bags will be inserted and included during the bagging process. If the desiccant bags are not visible, a label will be provided indicating the number of desiccant bags placed inside the product.

6322 Nunn St. • Houston, TX 77087
(713)641-1791 • (800)851-1791 • Fax (713)641-2072 • Email: sales@haygor.com
www.haygor.com