



# *Chemical Injection Technologies*

## Installation/Service Bulletin

### SUPERIOR Gas Chlorinator/Sulfonator Preventive Maintenance Recommendations

While there are a number of variables in each installation which affect the required maintenance intervals, Chemical Injection Technologies offers the following explanations and recommendations for preventive maintenance.

The materials utilized in the production of SUPERIOR gas chlorinators and sulfonators have been carefully selected for their strength, chemical resistance, and longevity. Many of these materials cannot be found in any other brand of this type of equipment, no matter what the cost. For this reason, instances of SUPERIOR equipment operating for as long as 5 or 6 years with absolutely no maintenance, are quite common. While we do not recommend waiting until you experience a problem before performing maintenance on any equipment associated with chlorine or sulfur dioxide, we also do not recommend constantly disassembling this type of equipment in order to search for a possible problem. Physical disassembly and reassembly may itself cause damage that did not previously exist.

#### **ENVIRONMENTAL FACTORS**

The environment in which the equipment is used can sometimes dictate the necessary frequency of maintenance. For example, the same piece of equipment being used in an enclosed, climate controlled installation, may be able to run much longer without any problems than if it was in use out in the direct sun and subject to other environmental variables.

#### **GAS QUALITY**

Another major variable is the quality of the chlorine or sulphur dioxide being used. Many utilities find themselves forced into accepting poor quality gas because of competitive bidding requirements. The low bidder may be cutting his costs by eliminating

some important quality control procedures. When cylinders ( especially ton containers ) are not cleaned out on a regular basis, the impurities which are left behind begin to build up and form a layer of "sludge". When the cylinder is re-filled, the sludge contaminates the new, clean chlorine and makes it dirty. As a result, the contaminated chlorine gets run through the equipment and gas piping, leaving deposits of these impurities throughout the system, causing the need for more frequent maintenance.

#### **LEVELS OF PREVENTIVE MAINTENANCE**

We have found that there are two categories of preventive maintenance into which most customers can be grouped, depending on the policies and procedures of their respective organizations. It is up to each organization to determine its own requirement:

1. HIGH LEVEL MAINTENANCE - equipment is completely disassembled, cleaned and basic consumable parts are replaced regardless of condition, on an annual basis.
2. STANDARD MAINTENANCE - less frequent disassembly, with regular inspection intervals of critical areas.

All maintenance and repair of gas chlorine or sulfur dioxide equipment must be performed by qualified technicians.

#### **HIGH LEVEL MAINTENANCE**

Many industrial and municipal installations have formulated policies, due in part to environmental factors as well as personnel training and other considerations, that require equipment to be overhauled more frequently than is deemed necessary by the manufacturer. Where such a level of maintenance is desired the following is recommended on an ANNUAL (12 month) basis, In

ADDITION to any recommended STANDARD MAINTENANCE listed below :

1. Completely disassemble all components.
2. Inspect all parts for physical wear, chemical attack and deposits of impurities.
3. Replace any parts which show physical damage that may result in a vacuum leak or failure under physical stress.
4. Remove and replace all O-Rings.
5. Clean all parts with cleaners and solvents as recommended in the "OPERATION AND MAINTENANCE" manual.
6. Reassemble and test for vacuum integrity
7. Test for inlet pressure leaks.

### STANDARD MAINTENANCE

Unless operational problems are encountered, we recommend the following STANDARD maintenance intervals:

1. **INSPECTION** - 6 months
  - A. Check all connections and assemblies for gas leaks.
  - B. Inspect the gas inlet sealing surfaces for signs of wear or physical damage.
  - C. Check all vacuum tubing for cracks or signs of brittleness. Replace if necessary.
  - D. Check inlet gas filter for buildup of impurities. Replace or clean as required.
  - E. Unscrew check valve assembly from ejector. Inspect high pressure check valve for signs of wear, chemical attack or physical damage. Replace if necessary. Clean check valve seat if necessary.
  - F. Unscrew and remove the rate valve plug. Inspect for buildup of impurities valve metering surfaces and clean if necessary.
2. **DISASSEMBLY** - 24 months
  - A. Completely disassemble all components.
  - B. Inspect all parts for physical wear, chemical attack and deposits of impurities.
  - C. Replace any parts which show physical damage that may result in a vacuum leak or failure under physical

stress.

- D. Remove and replace all O-Rings.
- E. Clean all parts with cleaners and solvents as recommended in the "OPERATION AND MAINTENANCE" manual.
- F. Reassemble and test for vacuum integrity
- G. Test for inlet pressure leaks.

See BULLETIN 4000 "SUPERIOR Gas Chlorinator / Sulfonator Statement of 3 Year Limited Warranty" to determine if any parts which require replacement may be covered. All warranty replacement must be done by Chemical Injection Technologies, Inc. at its factory. Complete assemblies containing all parts must be provided. Individual parts returned to C.I.T., Inc. may not qualify for warranty replacement.