

## Overview of Industrial Corrosion Fighter (“ICF”) Product Applications and Performance

It is the belief of many within various private sector industries as well as Federal, State and local governments that corrosion is an inevitable foe and that continuous extensive maintenance to control it is an unavoidable process. Corrosion remains a very real challenge even when corrosion resistant alloys (“CRA’s”) serve as the major operating components. As products and manufacturing processes have become more complex the penalties of failures from CRA’s due to corrosive processes, including safety hazards and interruptions in plant operations, has become increasingly costly. Based on many catastrophes that are traceable to corrosion-related failures, industry today faces increased government scrutiny for the purpose of mitigating it and avoiding similar events. We offer a viable solution that is immediately available and that can prolong the life of metallic structures and components exposed to the environment.

Our ICF product can significantly prevent corrosion, and is appropriate in all industrial/manufacturing and government sectors – anywhere metals, whether or not CRA’s, are used.

- There are many indirect costs related to corrosion that can be minimized if more state-of-the-art corrosion control practices are implemented.
- With the implementation of more state-of-the-art fluid distribution technologies (“FDT”), it is possible to circumvent or eliminate what have up to now been considered as unavoidable maintenance costs.

Estimates of costs to control corrosion in many studies have varied widely, ranging from **10 - 40 percent** of the total production cost. Most studies have categorized corrosion control costs according to industrial sectors, or to types of corrosion control products and services. All studies have focused on direct costs, even though it has been estimated that indirect costs due to corrosion damage are often significantly greater than direct costs. Indirect costs have typically been excluded from these calculations simply because they are too difficult to estimate.

We can help minimize your indirect costs with the application of our proprietary corrosion elimination and control formula – INDUSTRIAL CORROSION FIGHTER (“ICF”).

Industrial Corrosion Fighter uses fluid distribution technologies to control corrosion. Our concentrated rinsing/flushing applicator is designed to remove salt film and residual crystals from any surface. Our patented distribution device is designed with no moving parts and can easily retrofit onto all existing outdoor faucets, relying on the use of either fresh or salt water to serve as the propelling force to remove corrosive build-up on critical components.

Our proprietary ICF distribution device connects to industrial hoses or power washers, allowing your maintenance teams to spray externally when fighting and controlling corrosion. No rubbing, scrubbing or further rinsing is required!

## 1. Included in Your Preventive Maintenance Program

A typical service schedule follows this routine:

A Service: Every 150 hours grease chassis/body and inspection

B Service: Every 300 or 450 hours grease/body, inspection, and oil change. Replace fuel and oil filters and inspect/replace air filters

Hydraulic Service: Every 500 to 1,800 hours replace the hydraulic filter, breather, suction and fluid (or run through a filtering system)

Service @ 2,500 – 3,000 hours: Allison transmission filter and fluid change, and engine valve adjustment

Service @ 4,500 hours – DPF cleaning

Annually: DOT inspection, coolant & filter, rear end gear oil, manual transmission gear oil

## 2. Used in your Preventive Maintenance Service

A PM service checklist should contain required inspections, and other safety tasks, including but not limited to:

- Changing engine oil and filters
- Transmission fluid
- Inspection of cooling and fuel systems
- Inspecting engine and transmission mounts
- Inspecting and changing (if necessary) drive shafts, U-joints, belts, and hoses
- Inspecting electrical system components
- Inspecting the brake system and replacing brake shoes, brake drums as needed
- Inspecting the steering and suspension system
- Inspecting tires, wheels, and rims
- Replacing tires as needed
- Inspecting the exhaust system
- Evaluating the condition of the undercarriage and frame
- Inspecting both interior and exterior lights
- Replacing the windshield wipers and filling windshield fluid
- Inspecting seat structures and seatbelts
- Greasing the body and chassis
- Checking for fluid leaks
- Checking hydraulics and related parts
- Checking packer body functions and addressing wear points

## 3. Refuse Body Maintenance

The garbage packer body is the lifeline of the garbage truck. A garbage body that is in good operating condition means better efficiency, higher productivity and greater profitability.

The continual pounding that a garbage body takes puts a lot of stress on its mechanisms. There's a lot of moving parts and a lot of wear-and-tear. Poor maintenance, inadequate lubrication or greasing will result in cylinder failure, metal-on-metal parts and premature damage.

Areas of focus include forks, arms, blades, slides, rollers, broken pins, loose mounting bolts and more. Routine maintenance and frequent lubrication and greasing are essential and paying attention to these details will help haulers avoid bigger problems. Regularly checking for any cracking or fatigue of metal components is also recommended.

The nature of the garbage truck body, its exertion of force and the heavy loads it compacts and carries means that parts will start to wear and become less effective over time. It will need careful and consistent maintenance.

## 4. Hydraulic System Maintenance

A healthy hydraulic system is an essential component to ensure your truck is performing efficiently. The hydraulic system on a garbage truck includes the pump, PTO, PTO shaft, hydraulic tank, hydraulic fluid filter, high-pressure hoses, valves

and cylinders. You will need to inspect all of these parts routinely. Leaks anywhere in the system can result in your garbage body having less power due to the reduced pressure. You will also need to periodically check the hydraulic fluid reservoir as sometimes foreign objects can get inside and contaminate the hydraulic fluid. And if a pump or cylinder fails, the oil should always be cleaned or replaced. Make sure to inspect and replace the hydraulic fluid filter regularly and perform consistent checks on all aspects of the hydraulic system. This is important for maintaining and getting the best performance out of your garbage truck body.

## 5. Engine Emission Maintenance

The importance of preventive maintenance to the emissions systems must be emphasized in the strongest terms. Major repairs to the emissions system can be nearly as expensive as a complete motor replacement, so it is critical to have a proactive PM schedule. Among the items to look at are the routine examination of the passive and active regeneration history and soot levels at regen. These items that inadvertently cause the motor to consume more fuel or burn fuel poorly ultimately degrade the expensive components in the emissions system. Clutch fans constantly engaged, leaks in the turbo boost system, valves out of adjustment, thermostats stuck open or opening at the incorrect temperature, PTO pumps running unnecessarily all contribute to unnecessary fuel consumption and premature destruction of the DOC and DPF sections of the emissions system. Furthermore, DEF filters not being changed on a schedule, DEF dosers not being cleaned on a schedule and DEF pumps not being allowed to purge or power down can cause premature problems with the SCR section, unnecessary road calls and huge repair bills.

## 7. Brakes & Tires

Brakes need to be checked regularly because the constant stopping of the truck on the route creates excess wear and tear. The brakes will need special attention and most likely need to be replaced more often. Tires should also be inspected every day. Tires are one of the most critical elements on a refuse truck since they haul very heavy loads (10 to 15 tons or more). Worn tires can lead to increased braking distances and reduced steering control. Before heading out on the route, make sure the tire pressures are good and the tread depths are above legal minimums.

## 8. Keeping Your Trucks Clean

The build-up of debris or trash behind the blade can prevent it from working effectively. Cleaning behind the packer blade which will help prolong the life of the body. You should clean out any debris behind the packer blade after every shift as bits of garbage can get stuck there and cause issues. And you should always make sure you check for signs of damage as you clean. Cleaning your garbage trucks regularly inside and out, may not make them run better, but it's good for company morale, branding and image.

Once liquid solvents (i.e., "Salt-X", a liquid solvent that eliminates and stops corrosion) are combined in the ICF distribution cylinder, calibrated doses of it are distributed into a wide variety of applications, including closed or opened water storage tanks, cooling towers, nuclear waste storage, highway bridges, gas and liquid transmission pipelines, hazardous material storage, drinking water and sanitary sewer systems, electrical utilities, ships, aircraft, railroad cars, track and wheel vehicles, dump trucks, front loaders, mining, petroleum refining, agriculture, pulp paper, chemical petrochemical and pharmaceuticals with special emphasis on reaching internal and external components in an effort to control corrosion.

Materials and parts surfaces where ICF can control corrosion:

Cast iron, cast steel, forged steel, stainless steel, brass, bronze, malleable iron and ductile iron, aluminum, special and exotic alloys, pumps and valves, actuators, fluid

handling pipes and fittings electrical heat exchangers bearings, structural steel gaskets, O-rings, fiberglass pipes and fittings, stainless steels and alloys . . . . and more.