

# ADVERSE LOCATION ENVIRONMENTS

In many industries, luminaires must operate under conditions that are considered “Adverse”—corrosive, wet, dirty, etc.—which do not necessarily fall into the normally hazardous or not normally hazardous categories defined by NEC. While a UL844 Listed luminaire might be applied, it must also be resistant to corrosive actions of the environments commonly found in industry, many of which are listed below.

ADVERSE ENVIRONMENT	SOURCE/PROCESS/USES	TYPICAL INDUSTRIES
<b>ACIDS</b>		
Hydrochloric (Muriatic)	Solder fluxes Cleaning metals, tile, brickwork Making glue, gelatin, dextrose, chlorides	Metal manufacture Metal finishing Brick and ceramics
Nitric	Manufacturing of explosives, dyes, fertilizers, plastics, nitrates Metal finishing and coating	Explosives Textile Fertilizer Plastics Metal finishing
Sulfuric	Gas drying agent Petroleum purification Making glass, explosives, inks, dyes, fertilizers, batteries Metal cleaning and finishing	Petroleum Plating Fertilizer Battery Metal finishing
Phosphoric	Making fertilizers, detergents Metal finishing Water softeners Cleaning agents Drying agents	Fertilizer Food Metal finishing
Hydrofluoric	Pickle baths Etching solutions Catalysts Cleaning sand from castings Insecticides	Metal finishing Glass Petroleum Lighting products
<b>BASES</b>		
Sodium or Potassium Hydroxide	Lye, soda lye Chemical production Cleaners Refining Soap	Metal finishing Chemical Pulp and paper Petroleum Food
<b>GASES</b>		
Chlorine	Paper and textile bleaching Manufacturing of chloroform, sulfur chloride, dyes, medicines, cleaning solvents Organic chlorine compounds Water purification Metal extraction (tin, zinc)	Pulp and paper Rubber Chemical Pharmaceutical Metal Petroleum
Nitrogen dioxide Sulfur dioxide	See Nitric Acid Making Sulfuric Acid Bleaches, disinfectants, refrigerants Mold growth prevention	Chemical Pulp and paper Food
<b>SALTS</b>		
Chlorides	Soldering fluids (Zinc chloride) Floor and wall coverings (Magnesium chloride) Batteries (Ammonium chloride) Soldering Pastes (Ammonium chloride) Coal dust control (Calcium chloride) Ferric, Sodium, Nickel, Potassium chlorides	Metal processing Battery Coal processing
<b>OTHER ADVERSE ENVIRONMENTS</b>		
Steam Salt water Dust		Utility Chemical

For these and many other adverse environments, luminaires have been designed and constructed with no exposed exterior metal parts (housings, reflectors, hinges, fasteners, etc.). Materials like Fiberglass Reinforced Polyester (FRP), Polypropylene, and Fiberglass Reinforced Polybutyleneterephthalate (PBT) have replaced die-cast aluminum and other metal parts to provide better

corrosion resistance in a broader range of adverse environments. The GE Perma•Gard® luminaire with an FRP housing, glass globe, polypropylene reflectors, acrylic or polycarbonate refractors, and PBT globe guard has no exposed metal parts and carries appropriate UL Listings and NEMA 4X rating for use in many adverse locations described above.