

ADVANCED MICROWAVE COMPONENTS

12500 71<sup>st</sup> Court, Largo, Florida 33773



**GREEN INITIATIVE  
POLLUTION PREVENTION AND  
RECYCLING PROGRAM**

GREEN INITIATIVE POLLUTION PREVENTION PROGRAM

## Forward

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Today, more than ever, it is so important for all of us to take an active role and participate as responsible members of society. Collectively, as individuals and corporately, we must take the lead to develop a philosophy and lifestyle that contributes to the safety and precious resources of our planet.

It is the policy of this organization, to lead by example and to do our part to conserve energy, care for the environment, reduce waste and recycle wherever possible.

In participating with this philosophy, we trust that our contributions will result in a real benefit for present day, as well as future generations to come. We look forward to a bright and healthy future.

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## 1. Scope

To provide and implement an in-house Pollution Prevention Program or “Green Initiative”, by reducing or eliminating waste at the source by modifying production processes, promoting the use of non-toxic or less toxic substances, implementing conservation techniques and reusing materials rather than putting them into the waste stream.

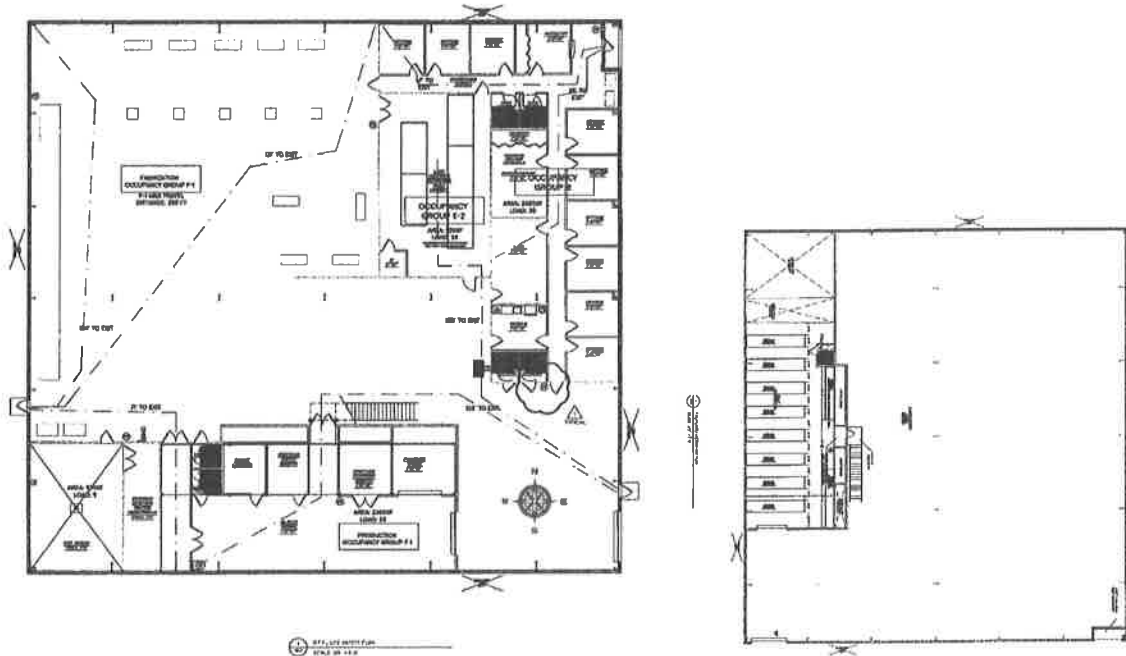
Adopting pollution prevention practices and techniques will benefit our company by lowering our operational and environmental compliance costs. Pollution prevention increases efficiency in the use of raw materials, energy, water, and conserves our natural resources. These effects in turn will have a direct benefit to our community.

## 2. Pollution Prevention Program Categories and Descriptions

### 2.1. Building Design and Layout

2.1.1. Building Design is high efficiency, well insulated.

### 2.2. Equipment Design, shop Area





## 2.3. In-Process Control

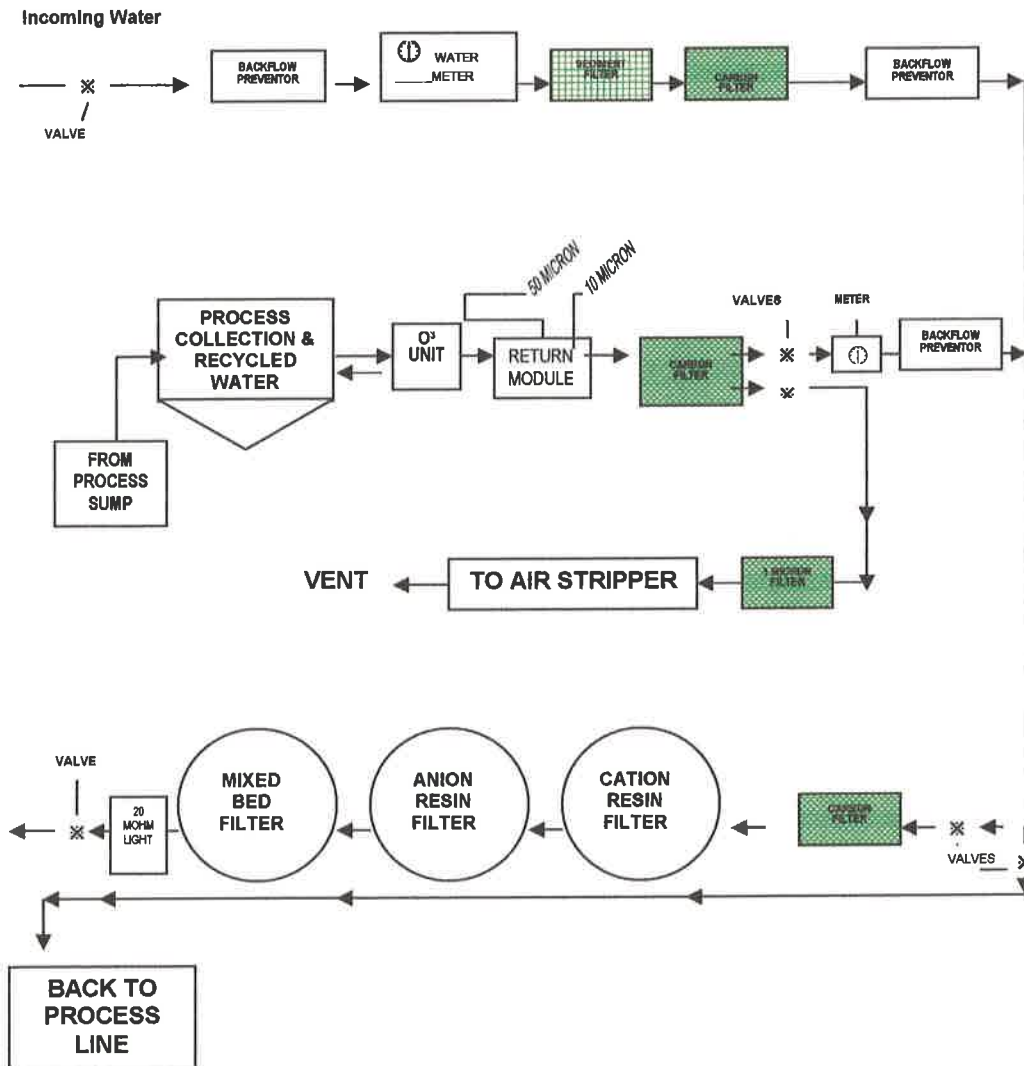
### 2.3.1. Special Processes

AMC-001	Passivate Treatments
AMC-002	Chemical Conversion Coating
AMC-003	Coating Application of Paint
AMC-004	Powdercoating
AMC-005	Solid Film Lube
AMC-006	Part Mark / Silkscreen / Ink
AMC-007	Chromate for Copper



## 2.4. Water Recycling and Conservation

### 2.4.1. Diagram #1



### 2.4.2. Water Recycling

All waste waters are collected in a 1000 gallon holding tank. NO waste water from any industrial processes conducted within our facility enters the local sewer (POTW), or are released into the environment. We operate a virtually, closed loop water treatment and recycling system (ref: AMC-GI-04). All chemical processes are designed within a specially treated containment area to prevent any accidental release outside the containment area or environment.



### 2.4.3. Water Conservation

With additional conservation techniques, such as in-tank filtration of the process tanks and rinses, our total water consumption is estimated to be approximately 60% less than that of our previously equipped facility while entertaining a capacity increase of 150%. Our capacity has more than doubled and our consumption has been reduced by more than one half.

Additionally, we have installed re-circulating hot water lines for sinks, which reduces water consumption and lowers energy costs. Water facets and nozzles are equipped with flow restrictions and aerators.

## 2.5. Office Equipment

- 2.5.1. Copier / Scanner – We have invested in a new, “state of the art” copier scanner, PC friendly System to reduce paper consumption and move towards an eventual “paperless process system”.
- 2.5.2. We use double sided printing when ever possible. All PC’s, copiers, monitors and printers are equipped with low energy, stand-by mode features.
- 2.5.3. Most inter office communication is email, not paper. PC’s, copiers, monitors and printers are turned off nightly and on weekends.

## 2.6. HVAC

HVAC Systems are new, high efficient design.

## 2.7. Landscaping

- 2.7.1. Landscaping materials and plants are low water tolerant.
- 2.7.2. Water for landscaping is supplied by pump from retention pond.

## 2.8. Green Cleaning

- 2.8.1. Environmentally friendly, biodegradable cleaning supplies and materials

## 2.9. Reuse of Materials



**2.9. Reuse of Materials**

2.9.1. Cardboard Boxes, packaging materials and containers are reused and recycled where appropriate.

**2.10. Recycling Techniques**

2.10.1. Recycle Bins for paper, plastic, and aluminum cans.

**2.11. Purchase and Use of Materials**

2.11.1 Whenever feasible, product selection is determined in part, as a contributing factor with regards to the effect on human health and the environment. Energy efficient and environmentally safe products are selected and used whenever possible.

2.11.2 We utilize recycled new print for packing materials within our shipping containers whenever possible.

**2.12. Solvents**

Purchase low VOC materials. Install solvent reclaim & recycling unit.

**2.13. Paints and Primers**

Purchase low VOC materials and select chrome and lead free materials wherever possible. All in-house product is designed this way.

**2.14. Powdercoat**

Where ever possible, we design and recommend powdercoat as an environmentally friendly alternate to wet paint applications. Powdercoat is non-toxic and non-hazardous.

**2.15. Solder and Flux**

We are designing our new products to be RoHS compliant. (Reduction of Hazardous substances) This includes phasing out all solders containing lead & cadmium, and replace with tin alloy and lead-free solders. It also includes the elimination of all materials used in our manufacturing processes which include lead, mercury, cadmium, hexavalent chrome, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).





### Recycling Facts

Facts are organized by category: water, energy, paper, metal, aluminum cans, glass, plastic, Styrofoam, steel, junk mail, garbage, tires, food, newspapers, light bulbs, and miscellaneous. Our sources are at the bottom.

### WATER

Between 1950 and 2000, the US population nearly doubled. However, in that same period, public demand for water more than tripled! Americans now use an average of 100 gallons of water each day – enough to fill 1600 drinking glasses! (EPA, 2008)

A recent government survey showed at least 36 states are anticipating local, regional, or statewide water shortages by 2013. (EPA, 2008)

Most people realize that hot water uses up energy, but supplying and treating cold water requires a significant amount of energy too. American public water supply and treatment facilities consume about 56 billion kilowatt-hours per year – enough electricity to power more than 5 million homes for an entire year. (EPA 2008)

If just 1 percent of American homes replace an older toilet with a new WaterSense labeled toilet, the country would save more than 38 million kilowatt-hours electricity – enough electricity to supply more than 43,000 households for one month/ (EPA 2008)

If one out of every 100 American homes retrofitted with water-efficient fixtures, we could save about 100 million kWh of electricity per year – avoiding 80,000 tons of greenhouse gas emissions. That is equivalent to removing nearly 15,000 automobiles from the road for one year! (EPA 2008)

Letting your faucet run for five minutes uses about as much energy as letting a 60-watt light bulb run for 14 hours. (EPA 2008)

If all U.S. households installed water-efficient appliances, the country would save more than 3 trillion gallons of water and more that \$18 billion dollars per year! (EPA 2008)



Leaky faucets that drip at the rate of one drip per second can waste more than 3,000 gallons of water each year; a leaky toilet can waste about 200 gallons every day. (EPA 2008)

A full bath tub requires about 70 gallons of water, while taking a five minute shower uses 10 to 25 gallons. (EPA 2008)

The typical single-family suburban household uses at least 30 percent of their water outdoors for irrigation. Some experts estimate that more than 50 percent of landscape water use goes to waste due to evaporation or runoff caused by over watering! Drip irrigation systems use between 20 to 50 percent less water than conventional in-ground sprinkler systems. They are also much more efficient than conventional sprinklers because no water is lost to wind, runoff, and evaporation. (EPA 2008)

The average washing machine uses about 41 gallons of water per load. High efficiency washing machines use less than 28 gallons of water per load. (EPA 2008)

If your toilet is from 1992 or earlier, you probably have an inefficient model that uses between 3.5 to 7 gallons per flush. New and improved high-efficiency models use less than 1.3 gallons per flush – that’s at least 60 percent less than their older, less efficient counterparts. (EPA 2008)

About 75 percent of the water we use in our homes is used in the bathroom. (California Energy commission 2006)

## ENERGY

Every winter, the energy equivalent of all the oil that flows through the Alaskan pipeline in a year leaks through American windows.

The average U.S. home uses the energy equivalent of 1,253 gallons of oil every year.

Microwaves use around 50% less energy than conventional ovens; they’re most efficient for small portions or defrosting.

Every time you open your oven door during cooking, you lose 25 to 50 degrees – or more.



Washers and dryers can account for as much as 25% of the energy your use at home (including the hot water for the wash).

As much as 90% of the energy consumed by washing machines and 80% of the energy used by dishwashers goes to heating the water.

During the winter, you can save as much as 3% of the energy your furnace uses simply by lowering your thermostat one degree F (if it's set between 65°F and 72° F).

Dust on a light bulb or dirt on a glass fixture can reduce the light it gives off by 10 percent and makes it seem that you need a brighter, higher wattage bulb.

Even the paint color you choose can effect your energy use. A white wall reflects 80 percent of the light that hits it; a black one reflects just 10 percent. The more light the walls reflect, the greater chance that the light can be recycled by striking the wall, bouncing off, and still illuminating the room.

A heated waterbed can use as much energy as a large refrigerator. Leaving it unmade in the fall or winter can double that by letting the heat dissipate into the air.

You can save 10% or more of your heating or cooling cost by insulating and tightening up ducts.

About 15% of the energy you use for heating your home goes to warming up air that leaks in through the cracks.

Efficiency counts. The most effective new appliances typically use 50% less energy than the most wasteful ones.

Choose a refrigerator with a freezer top, instead of a side by side unit. On average, the savings amount to 20%.

Between 15 and 30 percent of the energy your water heater uses goes to keeping a tank of water hot, just in case you need it.



Even during a mild winter, you can lose as much energy through one single-pane window as a 75 watt light bulb uses running seven hours a day, 365 days a year.

A double pane window retains twice as much heat as a single pan window.

40% of the energy you use in your home is for heat.

## PAPER

One ton of 100% virgin (non-recycled) newsprint uses 12 trees.

A "pallet" of copier paper (20lb. sheet weight, or 20#) contains 40 cartons and weighs 1 ton. Therefore,

1 carton (10 reams<sup>0</sup> of 100% virgin copier paper uses .6 trees

1 tree makes 16.67 reams of copy paper or 8,333.3 sheets of paper.

1 ream (500 sheets) uses 6% of a tree (and those add up quickly).

One ton of coated, higher-end virgin magazine paper (used for magazines like National Geographic's and many others) uses more than 15 trees (15.36).

One ton of coated, lower-end virgin magazine paper (used for newsmagazines and most catalogs) uses nearly 8 trees (7.68).

At least 38.9% of the U.S. waste stream is paper.

Americans throw away 44 million newspapers everyday. That's the same as dumping 500,000 trees into landfills each week.

If every household reused a paper grocery bag for one shopping trip, about 60,000 trees would be saved.

We save 17 trees for each ton of recycled newspaper.

Recycling a 36-newspaper stack saves the equivalent of about 14% of the average household electric bill.



Making one ton of recycled paper uses only about 60% of the energy needed to make a ton of virgin paper.

One person uses two pine trees worth of paper products every year.

Americans discard 4 million tones of office paper every year – enough to build a 12 foot high wall of paper from New York to California.

Americans throw out about 85% of the office paper we use.

Americans use 50 million tons of paper annually- which means we consume more than 850 million trees. That means the average American uses about 580 pounds of paper each year.

Every ton of recycled office paper saves 380 gallons of oil.

Each year, 27 million acres of tropical rainforests are destroyed. That's an area the size of Ohio, and translates to 74,000 acres per day...3,000 acres per hour ...50 acres per minute.

## METAL

Every year we have enough energy to recycling steel to supply L.A. with nearly a decade's worth of electricity.

We save enough energy by recycling one aluminum can to run a TV set for three hours.

Recycling aluminum saves 95% of the energy used to make the material from scratch. That means you can make 20 cans out of recycled material with the same amount of energy it takes to make one can out of new material. Energy savings in 1993 alone were enough to light a city the size of Pittsburgh for six years.

Americans throw away enough aluminum every month to rebuild our entire commercial air fleet.



Recycling steel and tin cans saves 74% of the energy used to produce them.

Americans use 100 million tin and steel cans every day.

Americans throw out enough iron and steel to supply all the nation's automakers on a continuous basis.

A steel mill using recycled scrap reduces related water pollution, air pollution and mining wastes by about 70%.

When you toss our one aluminum can you waste as much energy as if you'd filled the same can half-full of gasoline and poured it into the ground.

### ALUMINUM CANS

More than 50% of a new aluminum can is made from recycled aluminum.

The 36 billion aluminum cans landfilled last year had a scrap value of more than \$600 million. (Some day we'll be mining landfills for the resources we've buried.)

### GLASS

Americans throw away enough glass bottle and jars every two weeks to fill the 1.350 foot towers of the former World Trade Center.

Most bottles and jars contained at least 25% recycled glass.

Glass never wears out ..it can be recycled forever. We save over a ton of resources for every tone of glass recycled – 1,330 pounds of sand, 433 pounds of soda ash, 433 pounds of limestone, and 151 pounds of feldspar.

States with bottle deposit laws have 35-40% less litter by volume.

If all the glass bottles and jars collected through recycling in the U.S. in 1994 were laid end to end, they'd reach the moon and half way back to earth.



## PLASTIC

Every year we make enough plastic film to shrink wrap Texas.

Americans go through 2.5 million bottles every year.

26 recycled PET bottles equals a polyester suit. 5 recycled PET bottles make enough fiberfill to stuff a ski jacket.

In 1988 we used 2 billion pounds of HDPE just to make bottles for household products. That's about the weight of 90,000 Honda Civics.

## STYROFOAM/POLYSTRENE (#6)

It is un-recyclable – you can't make it into new Styrofoam. The industry wants you to assume it is – don't BUY it!

Each year Americans throw away 25,000,000,000 Styrofoam cups, enough every year to circle the earth 436 times.

## STEEL

The steel industry's annual recycling saves the equivalent of electrically powered 18 million households for a year. Every time a ton of steel is recycled, 2500 pounds of iron ore, 1000 pounds of coal and 40 pounds of limestone is preserved.

Every day Americans use enough steel and tin cans to make a steel pipe running from Los Angeles to New York...and back. If we only recycle one-tenth of the cans we now throw away, we'd save about 3.2 billion of them every year.

The average American throws out about 61 pounds of tin cans every month.

About 70% of all metal used just once and is discarded. The remaining 30% is recycled. After 5 cycles, one-fourth of 1% of the metal remains in circulation.



### JUNK MAIL

If only 1000,000 people stopped their junk mail, we could save up to 150,000 trees annually. If a million people did this, we could save up to a million and a half trees.

The junk mail Americans receive in one day could produce enough energy to heat 250,000 homes.

The average American still spends 8 full months of his/her life opening junk mail.

### GENERAL GARBAGE

In 1865 an estimated 10,000 hogs roamed New York City, eating garbage. Now, one of every six U.S. trucks is a garbage truck.

In a lifetime, the average American will throw away 600 times his/her adult weight in garbage. If you add it up, this means that a 150 pound adult will leave a legacy of 90,000 pounds of trash for his/her children.

### TIRE/RUBBER

It takes half a barrel of crude oil to produce the rubber for just one truck tire.

Every two weeks, Americans wear almost 50 million pounds of rubber off their tire. That's enough to make 3 ¼ million new tires from scratch.

Producing one pound of recycled rubber versus one pound of new rubber requires only 29% of the energy.

### FOOD AND PACKAGING

\$1.00 out of every \$11.00 Americans spend for food goes for packaging.

Americans dump the equivalent of more than 21 million shopping bags full of food into landfills every year.





## NEWSPAPERS

Everyday America cuts down two million trees – but throws away about 42 million newspapers. That means the equivalent of about 500,000 trees are dumped into landfills every week.

If everyone who subscribes to the New York Times recycled, we'd keep over 6,000 tons of pollution out of the air.

It takes an entire forest – over 500,000 trees to supply Americans with their Sunday newspaper every week.

## LIGHTBULBS

Every year Americans buy over a billion incandescent light bulbs. That's three acres of bulbs every day.

A 60 watt incandescent bulb lasts about 750 hours; a fluorescent bulb with 1/3 the wattage will generate the same light and burn for 7,500 to 10,000 hours in five to ten years of normal use.

Substituting a compact fluorescent light for a traditional bulb will keep a half ton of CO<sub>2</sub> out of the atmosphere over the life of the bulb.

## OTHER

One gallon of used motor oil can contaminate 1 million gallons of water.

Most cars on U.S roads carry only one person. We have so much extra room in our 140 million cars that everyone in Western Europe could ride with us.

If today is a typical day on planet earth, humans will add fifteen million tons of carbon to the atmosphere, destroy 115 square miles of tropical rainforest, create seventy two square miles of desert, eliminate between forty to one hundred species, erode seventy one million tons of topsoil, add twenty seven hundred tons of CFC to the stratosphere, and increase their population by 263,000.



Almost four million computer diskettes are thrown away every day, which equals over one and a half billion disks per year or a stack of disks as tall as the Sears Tower in Chicago every 21 seconds. It will take nearly 500 years for the disks to degrade.

**SOURCES:**

American forest and Paper Association

American Flint Glass Workers Union Glass Molders/ Pottery Plastics & Allied Workers

America Recycles Days

Can Manufacturing Institute

California Department of Conservation

The Consumer Research Institute's Stop Junk Mail Page

Conservatree

The Container Recycling Institute

The Earth Works Group – Recycler's Handbook

Environmental Defense Fund

Environmental Protection Agency

The Green Consumer

Institute of Scrap Recycling Industries

International Institute for Environment and Development

National Polymers Inc.

Pulp and Paper International

Portland General Electric

Reach for Unbleached

Scholl and College Magazine

Waste Management, Inc.

Weyerhaeuser

Worldwatch Institute