



# The Pollution Prevention Equipment Program (PPEP) Book Web Site



[PPEP Home](#) | [Introduction](#) | [What's New](#) | [Equipment](#) | [Links](#) | [Help](#) | [FAQs](#) | [Site Map](#) | [<< Back](#)

## **POWER PARTS WASHER**

### ***COMPETITIVE INITIATIVE***

#### **DESCRIPTION:**

The MART Hurricane 60 High Profile Power Washer is a large cleaning cabinet with spray nozzles along the interior walls and ceiling that blast an environmentally safe alkaline detergent in an aqueous solution onto soiled parts. The combination of high temperature and strong blast pressure enables the washers to remove contaminants such as grease, oil, loose rust and corrosion, ethylene glycol, and fuel residue from engine blocks and engine components. The system is entirely closed-loop, with no wastewater discharge.

#### **DATA COLLECTION PERIOD:**

1.5 years

#### **Previous System: Hot Caustic Sodium Hydroxide Dip Tank**

##### ***Consumables***

Sodium hydroxide cleaner used at a rate of 350 pounds/90 days

Cost: \$1.48/pound

$\$1.48/\text{pound} \times 117 \text{ pounds/month} \times 12 \text{ months/year} = \$2,078$

Grease for agitator mechanism used at a rate of 1 cartridge/month

$12 \times \$7.26 = \$87.12$

Soap for steam cleaner used at a rate of 1 gallon/month

$\$7.50/\text{gallon} \times 12 \text{ gallons/year} = \$90$

Diesel fuel and engine oil (to prevent corrosion and flash rusting) used at a rate of 3 quarts /month

$\$0.263/\text{quart} \times 3 \text{ quarts/month} \times 12 \text{ months/year} = \$9.47$

**Total: \$2,266/year**

### **Labor**

**E-3 labor rate per hour:** \$10.39

**Loading:** 10 minutes

**Agitation:** 4 hours to 32 hours

**Steam cleaning or hot water rinsing:**

10 minutes to 30 minutes

**Blowdown:** 10 minutes

**Corrosion preventive spraydown:** 10 minutes

**Total labor typically averages 34 hours over 5 days**

<b>Total Annual Costs</b>	
<b>Item</b>	<b>Cost</b>
<b>Consumables</b>	\$2,266
<b>Labor</b>	18,370
<b>Waste Disposal</b>	<u>6,192</u>
<b>Total</b>	\$26,828

### **Waste Disposal**

Spent sodium hydroxide and soap mixture, disposed of at the rate of 350 pounds/90 days

\$2.10/pound x 117 pounds/month x 12 months/year = \$6,192

**Total:** \$6,192/year

### **Power Washer**

#### **Consumables**

Detergent: 145 pounds/500 gallons

Approximately 150 pounds used in 500-gallon capacity

\$340/500 gallons = \$0.68/gallon

\$0.68/gallon x 500 gallons x 2 replacements/year = \$680/year

Defoamer used at a rate of 1 quart/year: \$11.39/year

Corrosion preventive compound used at a rate of 2.5 gallons/year:

\$10/gallon x 2.5 gallons = \$25/year

Grease cartridge used at a rate of 3/year: \$7.26/cartridge x 3 cartridges/year = \$21.78/year

**Total:** \$738/year

**Labor**

E-3 labor rate per hour: \$10.39  
 10 minutes/cycle with 2 cycles required  
 10 minutes each for loading and unloading of engine blocks  
 Total of 30 minutes/engine block  
 2 engine blocks/week, including engine block components  
 \$10.39/hour x 1 hour/week x 52 weeks/year = \$541  
**Total: \$541/year**

**Waste Disposal**

Solution (500 gallons) disposed of every 6 months  
 \$21.30/55-gallon drum of wastewater

<b>Total Annual Costs</b>	
<b>Item</b>	<b>Cost</b>
<b>Consumables</b>	\$738
<b>Labor</b>	541
<b>Waste Disposal</b>	<u>405</u>
<b>Total</b>	\$1,684

Sodium Hydroxide Dip Tank	\$26,828
Power Washer	\$1,684
Total Cost Change	\$25,144
Initial Procurement	\$54,960
Expected Service Life	10 years
<b>Return on Investment (per 10-year period):</b>	<b>\$196,490 per unit</b> [10 x \$26,828] - [\$54,960 + (10 x \$1,684)]
<b>Break even:</b>	<b>2.19 years</b> \$54,960 / (\$26,828 - \$1,684)

**COST ANALYSIS SUMMARY**

- Power Washer reduces wastestream by more than 350 gallons per year, saving approximately \$5,800 in disposal costs.
- Power Washer saves 33 hours of labor per week.
- Power Washer eliminates the need for caustic solvents.