

## Basic PID Troubleshooting Guide

### PID Preventative Maintenance

Lamp Window is in constant contact with the sample stream. Clean with fine abrasives such as jeweler's rouge. If it is contaminated with silica oxides, hydrofluoric acid can be used (Caution: use gloves and clean in a fume hood)

- Lamp's O-ring seal will age (hastened by temperature) and have to be replaced. Replace seal when detector shows signs of leaking.

### PID Window Cleaning

A frequently occurring problem encountered with PID is the formation of a deposit on the outside of the window.

#### Polishing Instruction

Take a cotton applicator and wet the tip

Dip the applicator in levigated alumina powder or jeweler's rouge to pick-up a small load of the polishing compound.

Swab window of PID lamp using a circular motion with light pressure. Heavy pressure will leave very fine abrasions, which can reduce the UV transmission.

Rinse powder residue off with running tap water

Rinse window end in alcohol

Wipe window with soft tissue

**Caution: Never remove the SIX base Hex screws it can damage the Sensor**

Cool PID base to 80c

- Turn off Power supply
- Remove Tower, PID lamp, o-ring, washer and circular spring.
- Remove Make-up Tee and column from bottom of PID
- Cool and remove FID or ELCD if in tandem
- Lower Sweep gas (H<sub>2</sub>) to 25-30 mL/min

Flush center through-hole of PID sensor with Hexane (Hexane Boil); collect particles& contamination with a paper towel or small beaker in the GC oven cavity.

Repeat as many times as necessary until the paper towel does not show any discoloration or particles.

Raise Sensor temperature to 100°C, flush again.

Raise temperature to 200°C and reassemble

Allow PID to Stabilize, signal will be high for a few hours to overnight  
Caution: Never Bake above 250°C it will bake the contamination into the Sensor  
If the Sensor is severely contaminated it may need to be refurbished or replace

### **PID Water Problems**

Response quenching due to blocking of UV light  
Increases baseline due to increase in column bleed

## **TROUBLESHOOTING**

### **Problem**

#### **No response**

- Bad lamp, power supply, electrometer, or electrical connections
- Bad leak at detector inlet
- Faulty output device

#### Possible Fix

- Bad lamp, power supply, electrometer, or electrical connections
  - Check for visible light (bluish purple and stable) at top of lamp
  - Check electrical connections and make sure lamp saver circuit is off
  - Replace lamp
  - Check/replace power supply
- Inlet leak
  - Leak check inlet fittings
  - Make sure outlet is not clogged

### **Problem**

#### **Low Response**

- Bad Lamp, dirty lamp window, excessive detector flows, low lamp current, or a bad O-ring seal.
- Internal detector leaks or anywhere in sample pathway

#### Possible Fix

- Bad Lamp, dirty lamp window, excessive detector flows, low lamp current, or a bad O-ring seal.
  - Try a spare lamp
  - Check sweep gas and makeup gas flows
  - Increase current if lamp is old
  - Check lamp O-ring seal by pressing your finger (if septum isn't hot) to the detector exit. If a popping sound is heard as you remove your finger, the O-ring is good.
- Internal detector leaks or anywhere in sample pathway

## **Problem**

### **Noisy Detector**

- Contamination or internal leaks
- Normal noise will be observed after replacing anything in the sample pathway or detector for about a day or so.

### **Possible Fix**

- The contamination can usually be taken care of by removing the lamp and heating the detector to 250 degrees Celsius for about four hours with all gas flows on. Remove column if it cannot withstand the heat. Reinstall lamp and bake for another four hours at 200-225 degrees Celsius.

## **TROUBLESHOOTING**

### **Problem**

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  - Try a spare lamp
  - Check sweep gas and makeup gas flows
  - Increase current if lamp is old
  - Check lamp O-ring seal by pressing your finger (if septum isn't hot) to the detector exit. If a popping sound is heard as you remove your finger, the O-ring is good.
- Internal detector leaks or anywhere in sample pathway
  - If detector doesn't hold pressure (see above pop test), usually there is a cracked internal seal.

### **Problem**

#### **Noisy Detector**

- Contamination or internal leaks

- Normal noise will be heard after replacing anything in the sample pathway or detector for about a day or so.

#### Possible Fix

- The contamination can usually be taken care of by removing the lamp and heating the detector to 250-275 degrees Celsius for about four hours with all gas flows on. Remove column if it cannot withstand the heat. Reinstall lamp and bake for another four hours at 200-225 degrees Celsius.