



Causes of Excessive Hydrocarbons (HC)

1. **Ignition System**
 - Poor spark (high voltage current) quality at each cylinder
2. **Ignition Timing**
 - Too advanced
3. **Lean Air / Fuel Ratios**
 - Too much air (lean misfire)
 - Not enough fuel
4. **Very Rich Air / Fuel Ratios**
 - Too much fuel
 - Not enough air
5. **EGR System Malfunctions**
 - Valve stem leaks (intake leaks)
 - Valve seat leaks (EGR at idle)
 - Too much EGR for a cylinder
 - EGR occurs too soon or abruptly
 - EGR hangs open (HC spike on decel)
6. **Engine Mechanical Problems**
 - Cylinder sealing issues
 - Low compression
 - Valve timing
7. **Faulty Catalytic Converter (Oxidation)**
8. **Restricted or plugged fuel injectors**