**Precursors:**

1. **Nitrogen Oxides (NOₓ):**
2. **Volatile Organic Compounds (VOCs):**
3. **Sunlight (UV Radiation):**
4. **Oxygen (O₂):**

**Products:**

1. **Ozone (O₃):**
2. **Peroxyacetyl Nitrate (PAN):**

**Primary Reactions Involved**

**1. Nitrogen Oxide Photolysis:**

* **Reaction:** NO2+hν(λ<420 nm)→NO+ONO₂ + hν

**2. Ozone Formation:**

* **Reaction:** O+O2+M→O3+MO + O₂ + M

**3. VOC Oxidation and Radical Formation:**

* **Reaction:** VOCs+OH→ROO (peroxy radicals) +other products

**4. NO to NO₂ Conversion (Radical Recycling):**

* **Reaction:** ROO+NO→NO2+ROROO + NO

**5. Formation of Peroxyacetyl Nitrate (PAN):**

* **Reaction:** ROO+NO2→PANROO + NO₂