What is claimed is:

~~1. A tube reactor packed with an active catalyst for the direct oxidation of propane to acrylic acid, the catalyst packed in the reactor such that the effective L/D ratio of the reactor is greater than (>) ten.~~

~~2. The reactor of Claim 1 with an L/D ratio from 20 to 40.~~

~~3. A process for the direct oxidation of propane to acrylic acid, the process comprising the step of contacting under oxidation conditions propane and oxygen with a propane oxidation catalyst, the oxidation conditions comprising a set point temperature and a peak temperature with a temperature difference (ΔT) between the set point and peak temperatures of less than 20°C.~~

41. A process for the direct oxidation of propane to acrylic acid, the process comprising the step of contacting under oxidation conditions propane and oxygen with a propane oxidation catalyst, the oxidation catalyst packed in a tubular reactor such that the effective L/D ratio of the reactor is ~~>10~~from 20 to 40 and the oxidation conditions comprising a set point temperature and a peak temperature with a ΔT between the reactor set point and peak temperatures of less than 20°C, wherein the reactor set point temperature is the target temperature for oxidation reaction.

2. The process of claim 1 wherein the propane contains less than 0.5 wt% propylene.

3. The process of claim 1, wherein the propane oxidation catalyst is mixed with one or more inert solids.

4. The process of claim 1, wherein the propane oxidation catalyst is a Mo/V/Te/Nb mixed metal oxide.

5. The process of claim 1, wherein the set point temperature is from 200°C to 500°C.