

# COMBUSTION

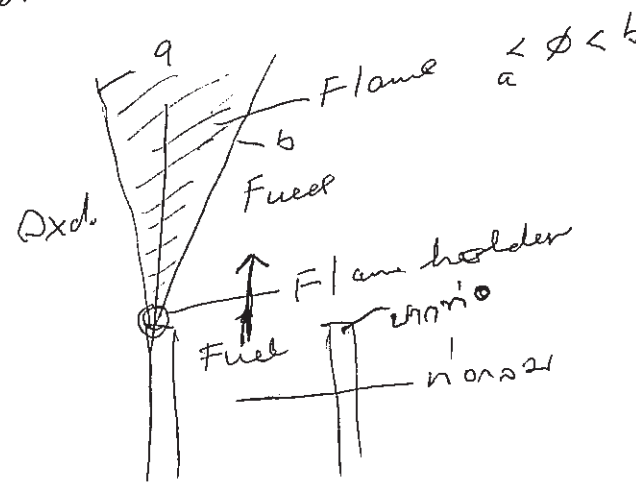
1) reaction between the mixture of fuel and oxygen  
 exothermic reaction  
 In presence of a surface (heat of combustion) or HOC reaction  
 Fuel + Oxidizer = products + Heat + Chemical Kinetic

2) FL Lim  $\phi < 1$  and  $\phi > 1$  (lean and rich)  
 In the case of  $\phi < 1$ , the mixture is lean and the flame is unstable.  
 In the case of  $\phi > 1$ , the mixture is rich and the flame is unstable.  
 (the rich mixture is more likely to extinguish than the lean mixture)

3. F holding mixture ratio ( $\phi$ ) + Quenching  
 In the case of flame holder, the mixture is rich and the flame is stable.  
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4. Turb/Laminar  
 Turb  $\phi < 1$  and  $\phi > 1$  (lean and rich)  
 In the case of Turb, the mixture is rich and the flame is stable.  
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5. Diffusion Flame  
 In the case of Diffusion Flame, the mixture is rich and the flame is stable.  
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