

HO: a) HO, the hydroxyl radical. An ubiquitous species, present in low levels in the atmosphere, where it is formed through photochemical reactions (due to sunlight), ozone ( $O_3$ ) or nitrous acid ( $HNO_2$ ). The hydroxyl radical is extremely reactive, being the primary agent in the gas phase oxidation, of such species as  $SO_2$  and  $NO_2$ , leading to the formation of  $H_2SO_4$  and  $HNO_3$  respectively.

b)  $HO^-$ , the hydroxy ion (see  $OH^-$ ).

$H_2O_2$ : Hydrogen peroxide, colorless, rather unstable liquid, melting point  $1.7^\circ C$ , boiling point  $152^\circ C$ . Miscible with water, soluble in ether. Caustic to the skin. May decompose violently in the presence of impurities. In the atmosphere gaseous hydrogen peroxide is formed in low levels as a result of photochemically initiated reactions between oxides of nitrogen and reactive hydrocarbons. The  $H_2O_2$ , thus formed is believed to be the main oxidizing species of  $SO_2$  to form  $H_2SO_4$ , once  $H_2O_2$  and  $SO_2$  are dissolved in cloud water.

Homogeneity: Turbulent flow field is homogeneous when flow characteristics remain unchanged to a linear translation of the coordinate axes.

$H_2SO_4$ : Sulfuric acid, oil of vitriol. Clear, colorless, odorless, oily liquid, very corrosive, boiling point  $200^\circ C$ . Miscible with water and alcohol with the generation of much heat and with contraction in volume. Used for the manufacture of fertilizers, explosives, dye stuffs, other acids, glue, purification of petroleum and pickling of metal.

Hydrogen Ion:  $H^+$  the positive ion of acids, consisting of a hydrogen atom whose electron has been transferred to the anion of the acid. The concentration of hydrogen ions in a solution determines the acidity.

Hydrometeor: Any product of condensation or sublimation of atmospheric water vapor, whether formed in the free atmosphere or at the earth's surface; also, any water particles blown into the air by the wind from the earth's surface.

Hydroxyl Radical: See HO.