VIVEKANANDA COLLEGE
THAKURPUKUR
KOLKATA-700063

NAAC ACCREDITED 'A' GRADE

Topic: Phase rule and diagram

Course Title: CC-2/ 2ND

Paper: 2

Unit: L-1

Semester: 2 (Gen)

Name of the Teacher: R Mondal

Name of the Department: Chemistry

Phase diagram of One-Component system:

3.12. SULPHUR SYSTEM (ONE-COMPONENT SYSTEM)*

Sulphur exists in two crystalline forms, namely, rhombic (S_R) and monoclinic (S_M) sulphur. Rhombic sulphur is stable at ordinary temperature and under one atmosphere pressure. When heated slowly, it changes into solid monoclinic sulphur at 95.6° (368.6 K). Above 95.6°C, monoclinic sulphur is the stable form. At 95.6°C, both forms are in equilibrium with each other. Each form has its own characteristic melting point. Thus, under a pressure of one atmosphere, melting point of rhombic sulphur (S_R) is 114°C (387 K) and that of monoclinic sulphur (S_M) is 119°C (392 K). The two solid varieties of sulphur can undergo reversible transformation at 95.6°C. Such a change is called **enantiotropy** and the temperature at which the two forms can undergo reversible transformation is called the **transition temperature**. Thus, 95.6°C is the transition temperature of sulphur. When heated, liquid sulphur (S_L) undergoes changes in colour and viscosity until it boils at 444°C (717K).

*Not included in syllabus of Burdwan University.

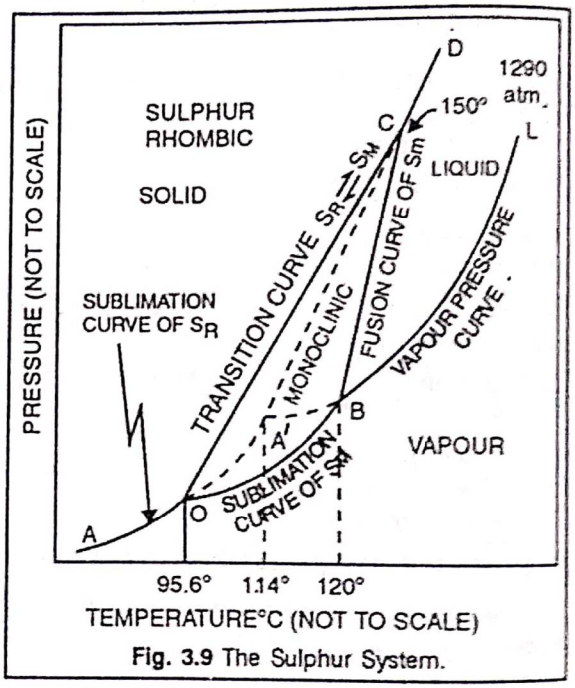

Fig. 3.9 The Sulphur System.