

MATERIALS AND METHODS

The present work is aimed at **studying the corrosion inhibition efficiency of some synthesized grafted terpolymers**. The research work is achieved through a research plan involving experiments carried out in five different phases. The experimental design adopted for the present investigation is carried out in five phases as shown in Figure 5.

Phase I

3.1 Synthesis of grafted terpolymers

Table - 4 Specifications of the chemicals used for synthesis of graft terpolymers

Name of the chemical	Molecular weight g/mol	Company
Polyvinyl alcohol	1,45,000	Merck
Acrylamide	71.08	Merck
Acrylic acid	72.06	Merck
Vinyl sulfonic acid sodium salt	130.10	Himedia
P-vinyl benzene sulfonic acid sodium salt hydrate	206.20	Lancaster
Potassium persulfate	270.33	Lancaster
TEMED	116.21	Lancaster
Acetone	-	Howrah chemicals

i. Selection of monomers

Polyvinyl alcohol was used as the base matrix for the terpolymer synthesis. Monomers used for the synthesis include acrylamide, acrylic acid, vinyl sulfonic acid sodium salt and p-vinyl benzene sulfonic acid sodium salt. Acrylamide was purified by recrystallizing from chloroform.

Polyvinyl alcohol is an odourless and tasteless, translucent, white or cream coloured granular powder. It is produced commercially from polyvinyl acetate. There are two main classes of PVA: partially hydrolysed and fully hydrolysed depending on the extent of hydrolysis of acetate groups. The extensive use of PVA in food and pharma industries makes it an undoubted material of choice with environmental value for wide range of applications. In the present work PVA is selected as a base matrix to graft other polymers onto it. PVA is cheaper and hence can be utilized in larger quantities when compared to other polymers.

Experimental design

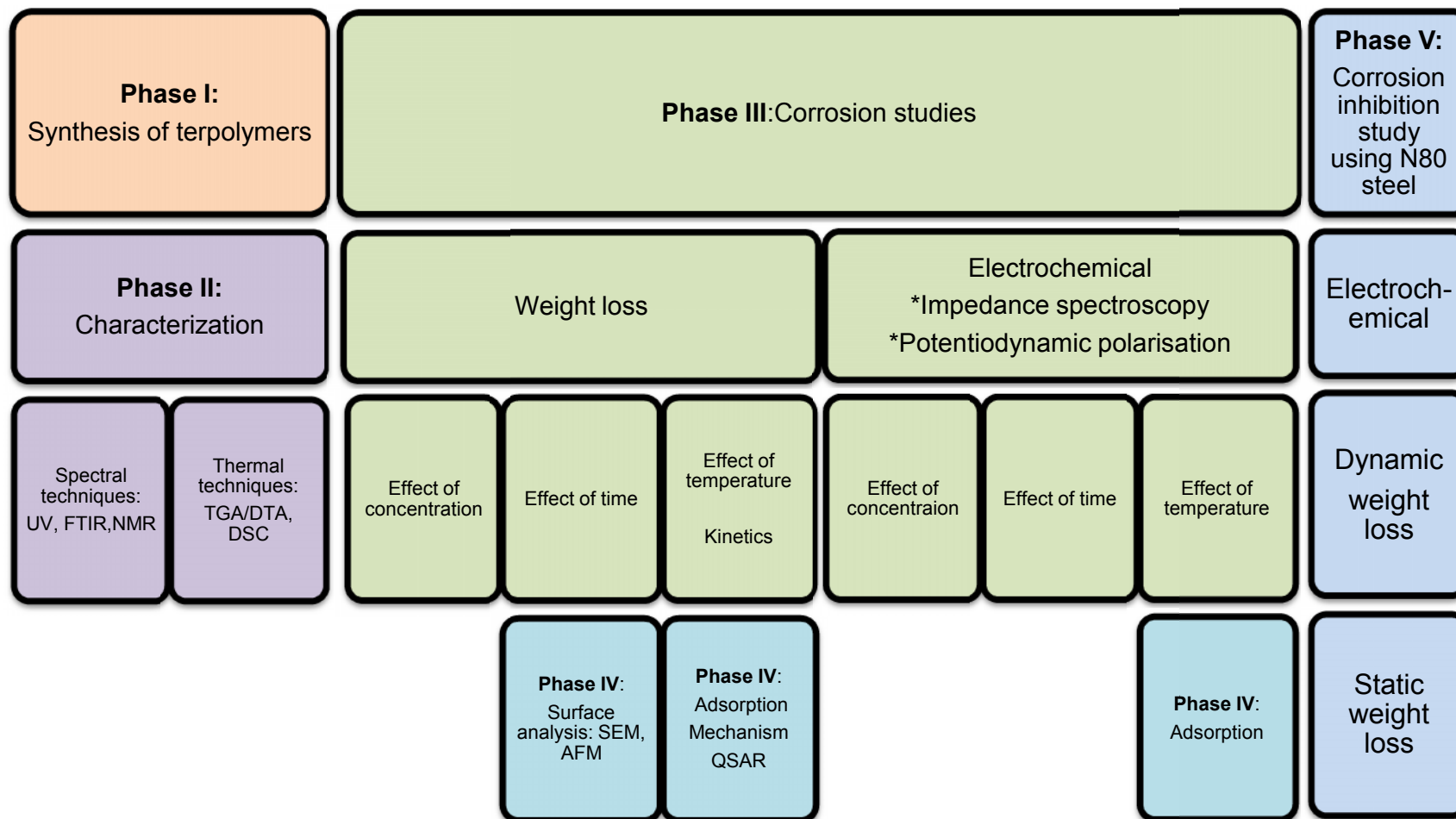


Figure - 5 Experimental design of the present study