

CONTENTS

CHAPTER (I)

INTRODUCTION

(A) Literature survey on corrosion behavior of nickel and its alloys in acidic medium.....	4
(B) Literature survey on corrosion behavior of nickel and its alloys in alkaline solution.....	9
(C) Literature survey on corrosion behavior of nickel and its alloys in neutral solution.....	13
(D) Passive film formation.....	16
(E) Pitting corrosion of nickel and its alloys.....	21
(F) Corrosion inhibition of nickel and its alloys.....	25
AIM AND SCOPE OF THE PRESENT WORK.....	34

CHAPTER (II)

Corrosion Kinetic of Nickel and its Alloys in Sulfuric Acid Solution and the Effect of Dihydrazide Derivatives as Corrosion Inhibitors.

(A) INTRODUCTION.....	36
(B) EXPRIMENTAL.....	37
(C) RESULTS.....	40
(D) DISCUSSION.....	42

1-Effect of acid concentrations on the kinetics of dissolution of nickel and its alloys in H ₂ SO ₄ solution.....	43
2- Effect of some dihydrazide compounds on the dissolution kinetics of nickel and its alloys.....	48

CHAPTER (III)

Initiation and Inhibition of Pitting Corrosion of Nickel and its Alloys.

(A) INTRODUCTION.....	58
(B) EXPERIMENTAL.....	59
(C) RESULTS.....	60
(D) DISCUSSION	61
1- Initiation of pitting corrosion using cyclic voltammetry measurements	62
2- Initiation of corrosion under potentiodynamic anodic polarization measurements.....	64
3- Inhibition of pitting corrosion of nickel and its alloys by dihydrazide derivatives.....	70
i) Cyclic voltammetry measurements.....	70
ii) Potentiodynamic measurements.....	71
REFERENCES.....	76
SUMMARY AND CONCLUSION.....	89
ARABIC SUMMARY	93