

CONTENTS

	Page
INTRODUCTION	
THE ELEMENT COLUMBIUM AND ITS COMPOUNDS	1
SOURCES OF COLUMBIUM	10
ECONOMIC ASPECTS AN THE SUPPLY SITUATION FOR COLUMBIUM	16
A REVIEW OF THE EXTRACTIVE METALLURGY OF NIOBIUM	20
NIOBIUM IN NUCLEAR REACTORS	35
RECENT DEVELOPMENTS IN SEPARATING TANTALUM AND NIOBIUM BY SOLVENT EXTRACTION	36
INVESTIGATION OF ELECTROLYTIC PROCESSES FOR PREPARATION OF HIGH PURITY NIOBIUM METAL	44
ANALYSIS FOR CERTAIN METALLIC IMPURITIES IN NIOBIUM	54
THE DETERMINATION OF NITROGEN AND OXYGEN IN NIOBIUM	57
TENSILE PROPERTIES AND ROLLING TEXTURES OF NIOBIUM SHEET	60
THE DUCTILE-TO-BRITTLE TRANSITION IN NIOBIUM	66
THE EFFECT OF RATE EARTH METAL ADDITIONS ON THE DUCTILITY OF ARC- MELTED GROUP Va METALS	77
ELECTROPLATED METALS ON NIOBIUM	81
THE DEVELOPMENT OF OXIDATION-RESISTANT NIOBIUM ALLOYS	87
PRELIMINARY STUDY OF THE EFFECT OF BINARY ALLOY ADDITIONS ON THE OXIDATION RESISTANCE OF COLUMBIUM	92
OXIDATION OF COLUMBIUM-CHROMIUM ALLOYS AT ELEVATED TEMPERATURES	98
VACUUM REACTIONS OF NIOBIUM DURING SINTERING	