



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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EFFECT OF ALUMINUM, TUNGSTEN AND COBALT ADDITION ON THE PROPERTIES OF SINTERED IRON BASED POWDER

By

Reham Salah Abd EL-Salam Soliman

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF SCIENCE

In

Mechanical Design and Production Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

EFFECT OF ALUMINUM , TUNGSTEN AND COBALT ADDITION ON THE PROPERTIES OF SINTERED IRON BASED POWDER

Key Words:

Iron composites; Tribological properties; Friction rate, Wear rate

Summary:

The aim of this work is to study the effect of aluminum, Tungsten and cobalt on the mechanical properties of iron based composites. Five samples were prepared by milling for 20 h followed by cold pressing then sintering at temperatures range from 1000 to 1250 °C. The samples were characterized using density measurements, SEM, Wear test and friction coefficient measurements. Sample five (5%W, 4% AL and 1% CO) showed the highest wear resistance, largest hardness, fine grain size and the lowest friction coefficient compared with other samples which recommend this sample to be a good candidate for applications require high wear resistance and moderate friction coefficient.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name:

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Signature:

Acknowledgments

My thanks and praise goes to my god for his help during the conduction of this work.

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Giza

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Table of Contents

List of Tables.....	vi
List of Figures.....	vii
Nomenclature.....	ix
Abstract.....	x
CHAPTER 1: INTRODUCTION.....	1
1.1.INTRODUCTION.....	1
1.2.POWDER METALLURGY.....	1
1.3 POWDER PRODUCTION.....	2
1.3.1.Atomization methods.....	2
1.3.1.1.Water atomization.....	2
1.3.1.2 Gas atomization.....	3
1.3.1.3 Oil atomization.....	4
1.3.1.4 Mechanical method (milling).....	4
1.4 MIXING OF POWDER METALLURGY.....	4
1.5 COMPACTION OF POWDER METALLURGY.....	5
1.5.1 Consolidation pressure.....	6
1.5.2 Factors affect on powder compressibility.....	7
1.5.2.1.Filling height.....	7
1.5.2.2.Flow rate.....	7
1.5.2.3.Appearent Density.....	8
1.6 SINTERING PROCESS	8
1.6.1 Solid state sintering.....	8
1.6.2 Stages of sintering.....	9
1.6.2.1 Initial stage.....	9
1.6.2.2. Intermediate stage.....	11
1.6.2.3. Final stage.....	11
1.7 FACTOR AFFECTING ON SINTERING PROCESS	12
1.7.1 Sintering temperature.....	12
1.7.2 Sintering time.....	12
1.7.3 sintering atmosphere.....	13
1.7.4 Particle size.....	13

1.7.5 Particle shape.....	13
1.7.6 Green Density.....	13
1.8 WEAR TEST.....	14
1.8.1 Factors which affect on nature and extent of wear & friction.....	14
1.8.2 Types of wear.....	15
1.8.3 wear evaluation of friction materials.....	16
CHAPTER 2 : LITERATURE REVIEW.....	19
2.1.INTRODUCTION.....	19
2.2 IRON BASED POWDER.....	19
2.3 EFFECTS OF SINTERING TEMPERATURE AND PARTICLE SIZE.....	19
2.4 SINTERING TEMPERATURE CALCULATIONS.....	20
2.5 OXIDATION RESISTANCE OF IRON BASED COMPOSITE	20
2.6 CHARACTERIZATION OF IRON BASED POWDER.....	20
2.7 POWDER SELECTION.....	20
2.8 PREVIOUS WORKS.....	22
CHAPTER 3 : THE EXPERIMENTAL WORK.....	24
3.1 INTRODUCTION.....	25
3. 2 EXPERIMENTAL WORK PROCEDURES.....	25
3.3 ROLE OF EACH CONSTITUENT USED IN THE COMPOSITE MATERIAL.....	25
3.4 MATERIAL POWDERS.....	26
3.5 APPARATUS USED IN EXPERIMENTAL WORK.....	26
3.5.1 Mixer.....	26
3. 5.2 Powder compaction (Cold compaction).....	27
3.5.3 Sintering of compacted samples.....	28
3.5.4 density of sintered samples.....	29
3.5.5 x-ray diffraction.....	29
3.5.6 scanning electron microscopy.....	30
3.6 MECHANICAL CHARACTERIZATION.....	30
3.6.1 Surface hardness measurement.....	30
3.7 TRIBOLOGICAL CHARACTERIZATION.....	31
CHAPTER 4: RESULTS AND DISCUSSION.....	35

4.1 SINTERING PROCESS EXPERIMENT AND RELATIVE DENSITIES.....	35
4.2 MICROSTRUCTURE.....	38
4. 2.1 Microstructure of the first sample.....	38
4. 2.2 Microstructure of the second sample.....	39
4. 2.3 Microstructure of the third sample.....	40
4.2.4 Microstructure of the forth sample.....	41
4. 2.5 Microstructure of the fifth sample.....	42
4.3 X-RAY DIFFRACTION.....	43
4. 3.1 X-ray diffraction of the first sample.....	43
4. 3.2 X-ray diffraction of the second sample.....	44
4.3.3 X-ray diffraction of the third sample.....	44
4. 3.4 X-ray diffraction of the forth sample.....	45
4.3.5 X-ray diffraction of the fifth sample.....	45
4.4 HARDNESS RESULT	46
4.5 WEAR RATE ESTIMATION	47
4.6 FRICTION COEFFICIENT.....	48
4.7 COMPRESSIVE STRENGTH	49
CHAPTER 5: CONCLUSION.....	50
REFERENCES.....	51

List of Tables

Table 1.1: Compacting pressures for some metal powders.....	6
Table 1.2: Pin on Disc tester.....	18
Table 3.1: The description materials of the samples.....	26
Table 3.2: The constituents composite materials of the samples.....	26
Table 3.3: The chemical composition of the cast iron disc.....	33
Table 3.4: Testing conditions for tribology characterizations.....	33

List of Figures

Figure 1.1: Sheet of powder metallurgy processing.....	2
Figure1.2: Water atomization system.....	3
Figure 1.3: Gas atomization system.....	3
Figure 1.4: powder production by mechanical milling.....	4
Figure 1.5: Blending and mixing equipments.....	5
Figure 1.6: A simplified view of the stages of metal powder compaction.....	5
Figure 1.7: Sketch of the density versus compaction pressure showing the key stages and declining compressibility as the density increased.....	6
Figure 1.8: Cold isostatic pressing.....	7
Figure 1.9: Hall flow meter.....	8
Figure 1.10: Sintering stage.....	9
Figure 1.11: Two sphere model of sintering.....	10
Figure 1.12: Definition of the neck growth in terms of the two particle sintering geometry.....	10
Figure 1.13: The microstructure model used for intermediate stage sintering..	11
Figure 1.14: Sequence of steps leading to transport.....	12
Figure 1.15: Effect of particle size on sintering.....	13
Figure 1.16: Wear stages.....	14
Figure 1.17: Friction test properties.....	18
Figure 2.1: Fe-W phase Diagrame.....	21
Figure 2.2: Co-W phase Diagrame.....	22
Figure 2.3 : AL-Co phase Diagrame.....	22
Figure 3.1 Rod mill used for mixing powders.....	27
Figure 3.2: Hydraulic pressing using to press the samples.....	27
Figure 3.3: The sample produced by hydraulic pressing.....	28
Figure 3.4: Tube furnace for sintering.....	28
Figure 3.5: Density Test device.....	29
Figure 3.6: X-ray diffract meter.....	30
Figure 3.7: Scanning analysis device.....	30
Figure 3.8: Vickers surface hardness tester.....	31
Figure 3.9: Arrangement of the pin on disc tester and its diagnostic	32

instrumentation system	
Figure 4.1: Relative densities of first trial sintering for all samples at 1100 °C	35
Figure 4.2 Relative densities of second trial sintering for all samples at 1150 °C	36
Figure 4.3: Rlative density of samples sintered at 1210 °C.....	37
Figure 4.4: SEM microstructure of First sample.....	38
Figure 4.5: SEM microstructure of second sample.....	39
Figure 4.6: SEM microstructure of third sample.....	40
Figure 4.7: SEM microstructure of forth sample.....	41
Figure 4.8: SEM microstructure of fifth sample.....	42
Figure 4.9: X-ray diffraction of the first sample.....	43
Figure 4.10: X-ray diffraction of the second sample.....	44
Figure 4.11: X-ray diffraction of the third sample.....	44
Figure 4.12: X-ray diffraction of the forth sample.....	45
Figure 4.13: X-ray diffraction of the fifth sample.....	45
Figure 4.14: Hardness values for all samples.....	46
Figure 4.15: Wear rate estimation result for all samples.....	47
Figure 4.16: Friction coefficient of different samples.....	48
Figure 4.17: The compressive strength results for all samples.....	49