

CHAPTER ONE: INTRODUCTION .....	1
STUDY BACKGROUND .....	1
STUDY GOALS AND OBJECTIVES.....	1
INTENDED AUDIENCE.....	2
METHODOLOGY .....	2
SCOPE AND FORMAT .....	3
ANALYST CREDENTIALS.....	3
RELATED BCC REPORTS .....	4
BCC ONLINE SERVICES.....	4
DISCLAIMER .....	5
 CHAPTER TWO: SUMMARY.....	 6
<i>SUMMARY TABLE GLOBAL ELECTRONIC CHEMICALS AND</i> <i>MATERIALS MARKET, THROUGH 2015 (\$ MILLIONS)</i> .....	 6
<i>SUMMARY FIGURE GLOBAL MARKET FOR ELECTRONIC</i> <i>CHEMICALS AND MATERIALS, 2009–2015 (\$ BILLIONS)</i> .....	 7
 CHAPTER THREE: OVERVIEW .....	 8
SEMICONDUCTOR APPLICATIONS .....	8
PRINTED CIRCUIT BOARD APPLICATIONS.....	8
ELECTRONIC MATERIALS .....	8
WAFERS.....	9
CMP SLURRIES .....	9
ELECTRONIC CHEMICALS.....	9
ELECTRONIC GASES .....	9
Bulk Gases .....	9
Argon .....	10
Carbon Dioxide.....	10
Chlorine.....	10
Helium.....	10
Hydrogen .....	10
Nitrogen.....	11
Oxygen.....	11
Specialty Gases.....	11
Boron Trichloride .....	11
Chlorine Trifluoride .....	11
Hydrogen Bromide .....	11
Nitrogen Trifluoride.....	11
Silicon Precursor Gases .....	12
Sulfur Hexafluoride .....	12
Reactant Gases .....	12
Ammonia .....	12
Nitrous Oxide .....	12
Dopant Gases.....	13
Arsine .....	13

Diborane .....	13
Phosphine .....	13
Miscellaneous Gases .....	13
POLYMERS AND CONDUCTIVE POLYMERS .....	14
POLYACETYLENES .....	14
POLYANILINE .....	15
POLYETHYLENE DIOXYTHIOPHENE (PEDOT) .....	15
POLYPYRROLE (PPY) .....	15
PHOTORESIST CHEMICALS .....	15
NEGATIVE PHOTORESISTS .....	16
POSITIVE PHOTORESISTS .....	16
I-line and G-line Photoresists .....	17
Deep Ultraviolet (DUV) Photoresists .....	17
Immersion Photoresists .....	17
Next-Generation Photoresists .....	18
Electron Beam Photoresists .....	18
Extreme Ultraviolet Photoresists .....	18
Other Advanced Photoresists .....	18
WET CHEMICALS AND SOLVENTS .....	19
ACETIC ACID .....	19
HYDROCHLORIC ACID .....	20
HYDROFLUORIC ACID .....	20
HYDROGEN PEROXIDE .....	20
ISOPROPYL ALCOHOL .....	20
METHANOL .....	20
METHYL CHLOROFORM .....	20
NITRIC ACID .....	21
PERFLUOROCARBONS (PFCS) .....	21
PERFLUOROOCXYL SULFONATES/PERFLUOROALKYL	
SULFONATES (PFOS/PFAS) .....	21
PHOSPHORIC ACID .....	21
SULFURIC ACID .....	21
SOLVENTS .....	22
MISCELLANEOUS CHEMICALS AND METALS .....	22
CADMIUM .....	22
COPPER .....	22
GALLIUM .....	22
MERCURY .....	22
SELENIUM .....	23
SILICON .....	23
SILVER .....	23
YTTRIUM .....	23
MISCELLANEOUS CHEMICALS .....	23
ALUMINUM GALLIUM ARSENIDE .....	23

BARIUM TITANATE .....	23
CHROMIUM DIOXIDE .....	24
GALLIUM ANTIMONIDE.....	24
GALLIUM PHOSPHIDE .....	24
HYDROXYLAMINE.....	24
INDIUM GALLIUM PHOSPHIDE .....	24
PERFLUORO BUTADIENE.....	24
POLYCRYSTALLINE SILICON OR POLYSILICON .....	24
TUNGSTEN HEXAFLUORIDE .....	25
SUMMARY OF MATERIALS USED IN ELECTRONICS.....	25
<i>TABLE 1 SUMMARY OF IMPORTANT ELECTRONIC CHEMICALS</i>	
<i>APPLICATIONS</i> .....	25
<i>TABLE 1 (CONTINUED)</i> .....	26
<i>TABLE 1 (CONTINUED)</i> .....	27
<i>TABLE 1 (CONTINUED)</i> .....	28
<i>TABLE 2 SUMMARY OF IMPORTANT ELECTRONIC MATERIALS</i>	
<i>APPLICATIONS</i> .....	28
PURITY REQUIREMENTS OF ELECTRONIC CHEMICALS.....	28
HISTORICAL TECHNOLOGY DEVELOPMENTS IN THE	
ELECTRONIC CHEMICAL INDUSTRY .....	29
HISTORICAL TECHNOLOGY DEVELOPMENTS	
(CONTINUED).....	30
TIMELINE.....	31
<i>TABLE 3 HISTORICAL DEVELOPMENTS IN THE ELECTRONIC</i>	
<i>CHEMICAL INDUSTRY</i> .....	31
<i>TABLE 3 (CONTINUED)</i> .....	32
<i>TABLE 3 (CONTINUED)</i> .....	33
CURRENT STATUS OF THE ELECTRONICS INDUSTRY .....	33
CURRENT STATUS OF THE ELECTRONICS ...	
(CONTINUED).....	34
CHAPTER FOUR: TECHNOLOGY OVERVIEW .....	35
IMPORTANT OPERATIONS IN SEMICONDUCTOR	
MANUFACTURING.....	35
BLANK WAFER PRODUCTION .....	35
Discrete Epitaxial Silicon Wafers .....	35
MOS Epitaxial Silicon Wafers .....	36
Wafer Processing .....	37
Shaping.....	37
Etching .....	38
Other Operations .....	38
PROCESSES FOR SEMICONDUCTOR FABRICATION .....	39
OXIDATION .....	39
COATING APPLICATION .....	39
ETCHING.....	40

Decapsulation .....	40
Wet Etching .....	40
Dry Etching.....	41
PHOTORESIST STRIPPING .....	41
DOPING.....	42
CHEMICAL MECHANICAL PLANARIZATION (CMP) .....	43
Oxide Planarization.....	44
Polysilicon Planarization.....	44
Metal Planarization.....	44
REMOVAL OF OXIDES AND MOISTURE.....	44
MULTILAYER PRESSING .....	45
ASSEMBLY AND PACKAGING.....	45
CHEMICALS USED IN THE PROCESSING OPERATION .....	46
<i>TABLE 4 CHEMICALS USED IN SEMICONDUCTOR FABRICATION</i>	
<i>PROCESSES</i> .....	46
<i>TABLE 4 (CONTINUED)</i> .....	47
PRINTED CIRCUIT BOARD MANUFACTURING.....	47
PROCESS OUTLINE.....	48
CHAPTER FIVE: OVERVIEW OF THE ELECTRONICS COMPONENT	
MARKET .....	49
ELECTRONICS COMPONENT INDUSTRY STRUCTURE.....	49
<i>TABLE 5 GLOBAL MARKET FORECAST FOR SEMICONDUCTORS</i>	
<i>AND PCBS, THROUGH 2015 (\$ BILLIONS)</i> .....	50
STATUS OF THE SEMICONDUCTOR INDUSTRY.....	50
<i>TABLE 6 GLOBAL SEMICONDUCTOR MARKET 2000–2015 (\$</i>	
<i>BILLIONS)</i> .....	51
<i>FIGURE 1 GLOBAL MARKET FOR SEMICONDUCTORS, 2000–2015 (\$</i>	
<i>BILLIONS)</i> .....	51
<i>TABLE 7 RANKING OF GLOBAL COMPANIES IN SEMICONDUCTOR</i>	
<i>INDUSTRY, 2009</i> .....	52
REGIONAL MARKETS .....	52
<i>TABLE 8 GLOBAL MARKET FORECAST FOR SEMICONDUCTORS BY</i>	
<i>REGION, THROUGH 2015 (\$ BILLIONS)</i> .....	53
Asia-Pacific .....	53
<i>TABLE 9 SEMICONDUCTOR MARKET FORECAST IN ASIA-PACIFIC</i>	
<i>(EXCEPT JAPAN), THROUGH 2015 (\$ BILLIONS)</i> .....	53
<i>FIGURE 2 INDIVIDUAL COUNTRIES' SHARE OF ASIA-PACIFIC</i>	
<i>SEMICONDUCTOR MARKET (EXCEPT JAPAN), 2009 (%)</i> .....	54
Asia-Pacific (Continued) .....	55
Japan.....	56
Europe .....	56
North America .....	56
SEMICONDUCTOR MARKET SECTORS.....	56

<i>TABLE 10 GLOBAL MARKET FORECAST FOR SEMICONDUCTORS BY SECTOR, THROUGH 2015 (\$ BILLIONS)</i> .....	57
<i>FIGURE 3 GLOBAL SEMICONDUCTOR MARKET SHARE BY SECTOR, 2009 (%)</i> .....	58
APPLICATIONS.....	59
Computer Market.....	59
Communications Market.....	59
Consumer Products Market.....	59
Automotive Market.....	60
Industrial/Office Market.....	60
Medical Market.....	60
Military/Aerospace Market.....	61
STATUS OF PRINTED CIRCUIT BOARD INDUSTRY.....	61
<i>TABLE 11 GLOBAL MARKET FOR PRINTED CIRCUIT BOARDS, THROUGH 2015 (\$ BILLIONS)</i> .....	61
<i>FIGURE 4 GLOBAL PRINTED CIRCUIT BOARD MARKET SHARES BY SECTOR, 2009 (%)</i> .....	62
INDUSTRY TRENDS.....	63
REGIONAL SHARES OF THE PCB MARKET.....	63
<i>TABLE 12 GLOBAL PCB MARKET FORECAST BY REGION, THROUGH 2015 (\$ BILLIONS)</i> .....	63
<i>FIGURE 5 GLOBAL MARKET SHARE OF PCB PRODUCTION BY REGION, 2009 (%)</i> .....	64
Asia-Pacific.....	64
Japan.....	65
North America.....	65
Europe.....	65
 CHAPTER SIX: GLOBAL ELECTRONIC CHEMICAL AND MATERIALS	
MARKETS.....	66
<i>TABLE 13 GLOBAL ELECTRONIC CHEMICALS AND MATERIALS     MARKET FORECAST BY TYPE, THROUGH 2015 (\$ MILLIONS)</i> .....	66
REGIONAL MARKETS.....	67
<i>TABLE 14 GLOBAL ELECTRONIC CHEMICALS AND MATERIALS     MARKET FORECAST BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	67
<i>FIGURE 6 MARKET SHARE OF ELECTRONIC CHEMICAL AND     MATERIALS BY REGION, 2009 (%)</i> .....	68
THE WAFER MARKET.....	68
<i>TABLE 15 GLOBAL WAFER MARKET FORECAST BY TYPE,     THROUGH 2015 (\$ BILLIONS)</i> .....	69
<i>FIGURE 7 GLOBAL WAFER MARKET SHARE BY TYPE, 2009 (%)</i> .....	70
<i>TABLE 16 GLOBAL MARKET FOR WAFERS BY REGION, THROUGH     2015 (\$ BILLIONS)</i> .....	70
<i>FIGURE 8 GLOBAL WAFER MARKET SHARE BY REGION, 2009 (%)</i> .....	71
SILICON WAFERS.....	71

<i>TABLE 17 GLOBAL SILICON WAFER MARKET FORECAST, THROUGH 2015 (\$ BILLIONS)</i> .....	72
<i>FIGURE 9 GLOBAL MARKET SHARE OF SILICON WAFERS BY TYPE, 2009 (%)</i> .....	73
GALLIUM ARSENIDE WAFERS .....	73
<i>TABLE 18 GLOBAL GALLIUM ARSENIDE WAFER MARKET FORECAST, THROUGH 2015 (\$ BILLIONS)</i> .....	74
CMP SLURRIES .....	74
<i>TABLE 19 GROWTH IN THE USE OF CMP SLURRIES IN SEMICONDUCTOR WAFER PRODUCTION, 1996–2009 (PERCENTAGE OF WAFER PRODUCED USING CMP)</i> .....	75
<i>TABLE 20 GLOBAL MARKET FORECAST FOR CMP SLURRIES BY TYPE, THROUGH 2015 (\$ MILLIONS)</i> .....	75
<i>FIGURE 10 GLOBAL CMP MARKET SHARES BY TYPE, 2009 (%)</i> .....	76
<i>TABLE 21 GLOBAL MARKET FORECAST FOR CMP SLURRIES BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	77
ELECTRONIC GASES .....	77
<i>TABLE 22 GLOBAL MARKET FORECAST FOR ELECTRONIC GASES, THROUGH 2015 (\$ BILLIONS)</i> .....	78
<i>FIGURE 11 GLOBAL MARKET SHARE OF ELECTRONIC GASES, BY TYPE, 2009 (%)</i> .....	78
SPECIALTY GASES .....	79
BULK GASES.....	80
REACTANT GASES.....	80
MISCELLANEOUS GASES INCLUDING DOPANT GASES.....	80
<i>TABLE 23 GLOBAL MARKET FORECAST FOR ELECTRONIC GASES BY REGION, THROUGH 2015 (\$ BILLIONS)</i> .....	81
POLYMERS.....	81
<i>TABLE 24 GLOBAL MARKET FORECAST FOR POLYMERS IN ELECTRONICS, INCLUDING CONDUCTIVE POLYMERS BY TYPE, THROUGH 2015 (\$ MILLIONS)</i> .....	82
<i>FIGURE 12 MARKET SHARE OF POLYMERS IN THE GLOBAL ELECTRONICS INDUSTRY, 2009 (%)</i> .....	83
REGIONAL MARKET SHARE FOR POLYMERS.....	83
<i>TABLE 25 GLOBAL MARKET FOR POLYMERS IN ELECTRONICS BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	84
PHOTORESISTS .....	84
<i>TABLE 26 GLOBAL ELECTRONICS PHOTORESIST MARKET FORECAST BY TYPE, THROUGH 2015 (\$ MILLIONS)</i> .....	84
<i>FIGURE 13 GLOBAL MARKET SHARE OF ELECTRONICS PHOTORESIST BY TYPE, 2009 (%)</i> .....	85
<i>TABLE 27 GLOBAL MARKET FORECAST FOR PHOTORESISTS BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	86
WET CHEMICALS AND SOLVENTS.....	86

<i>TABLE 28 GLOBAL MARKET FORECAST FOR WET CHEMICALS IN ELECTRONICS, THROUGH 2015 (\$ MILLIONS)</i> .....	87
<i>FIGURE 14 GLOBAL MARKET SHARES OF WET CHEMICALS BY TYPE, 2009 (%)</i> .....	87
<i>FIGURE 14 (CONTINUED)</i> .....	88
<i>TABLE 29 GLOBAL MARKET FOR WET CHEMICALS AND SOLVENTS IN ELECTRONICS BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	89
MISCELLANEOUS CHEMICALS INCLUDING METALS .....	89
<i>TABLE 30 GLOBAL MARKET FORECAST FOR MISCELLANEOUS CHEMICALS IN ELECTRONICS INCLUDING METALS, THROUGH 2015 (\$ MILLIONS)</i> .....	89
<i>TABLE 31 GLOBAL MARKET FORECAST FOR METALS AND MISCELLANEOUS CHEMICALS IN ELECTRONICS BY REGION, THROUGH 2015 (\$ MBILLIONS)</i> .....	90
 CHAPTER SEVEN: GLOBAL END-USER MARKETS FOR ELECTRONIC CHEMICALS AND MATERIALS .....	91
<i>TABLE 32 GLOBAL MARKET FORECAST FOR ELECTRONIC CHEMICALS AND MATERIALS BY COMPONENT, THROUGH 2015 (\$ MILLIONS)</i> .....	91
SEMICONDUCTORS .....	91
<i>TABLE 33 GLOBAL MARKET FORECAST FOR ELECTRONIC CHEMICALS AND MATERIALS IN SEMICONDUCTORS BY SECTOR, THROUGH 2015 (\$ MILLIONS)</i> .....	92
<i>FIGURE 15 GLOBAL MARKET SHARE FORELECTRONIC CHEMICALS AND MATERIALS USED IN SEMICONDUCTOR BY SECTOR, 2009 (%)</i> .....	93
REGIONAL MARKET FOR ELECTRONIC CHEMICALS AND MATERIALS USED IN SEMICONDUCTORS .....	93
<i>TABLE 34 GLOBAL MARKET FORECAST FOR ELECTRONIC CHEMICALS AND MATERIALS IN SEMICONDUCTORS BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	94
MATERIALS AND CHEMICALS USED IN SEMICONDUCTORS .....	94
<i>TABLE 35 GLOBAL SEMICONDUCTOR MARKET FOR ELECTRONIC MATERIAL AND CHEMICAL MARKET IN SEMICONDUCTORS BY PRODUCT, THROUGH 2015 (\$ BILLION)</i> .....	94
<i>TABLE 35 (CONTINUED)</i> .....	95
Wafers .....	95
CMP Slurries .....	95
Photoresists .....	96
Wet Chemicals .....	96
Polymers .....	96
PCBS .....	96

<i>TABLE 36 GLOBAL MARKET FORECAST FOR ELECTRONIC CHEMICALS USED IN PCBS BY SECTOR, THROUGH 2015 (\$ MILLIONS)</i> .....	97
<i>FIGURE 16 GLOBAL MARKET SHARE FOR ELECTRONIC CHEMICALS AND MATERIALS USED IN PCBS, 2009 (%)</i> .....	98
REGIONAL MARKET FOR ELECTRONIC CHEMICAL AND MATERIAL USED IN PRINTED CIRCUIT BOARDS.....	99
<i>TABLE 37 GLOBAL MARKET FORECAST FOR ELECTRONIC CHEMICALS AND MATERIALS FOR PCB BY REGION, THROUGH 2015 (\$ MILLIONS)</i> .....	99
MATERIALS AND CHEMICALS USED IN PCBS.....	100
<i>TABLE 38 GLOBAL FORECAST FOR ELECTRONIC MATERIALS AND CHEMICALS IN THE PCB MARKET, THROUGH 2015 (\$ BILLIONS) ...</i>	100

CHAPTER EIGHT: NANOTECHNOLOGY APPLICATIONS IN ELECTRONIC CHEMICALS AND MATERIALS.....	101
NANOMATERIALS FOR ELECTRONICS APPLICATIONS .....	101
NANOPARTICLE APPLICATIONS .....	102
Chemical-Mechanical Polishing (CMP) Compounds.....	102
Multilayer Ceramic Capacitors.....	102
Electronic Inks.....	103
Light-Emitting Diodes.....	104
Flat-Panel Displays .....	104
HOLLOW NANOPARTICLES APPLICATIONS .....	105
Semiconductors.....	105
Electronic Inks.....	106
Displays.....	106
Computer Memory.....	107
NANOSCALE THIN FILM APPLICATIONS.....	107
Displays.....	108
Solid-State Lighting .....	108
Hard Disk Media and Heads.....	108
Low-K Dielectric Coatings.....	109
Electroconductive Coatings.....	109
Transparent Electrodes.....	109
NANOCOMPOSITE APPLICATIONS.....	110
Electrostatic Discharge Dissipation.....	110
MARKETS.....	110
<i>TABLE 39 GLOBAL MARKET FOR NANOMATERIALS USED IN ELECTRONICS APPLICATIONS, THROUGH 2015 (\$ MILLIONS)</i> .....	110
<i>TABLE 39 (CONTINUED)</i> .....	111
<i>TABLE 40 NANOMATERIALS AS A PERCENTAGE OF ELECTRONIC CHEMICALS AND MATERIALS CONSUMED GLOBALLY, THROUGH 2018 (\$ MILLIONS)</i> .....	111



CHAPTER NINE: REGULATIONS.....	112
UNITED STATES.....	112
UNITED STATES (CONTINUED).....	113
UNITED STATES (CONTINUED).....	114
EUROPEAN UNION.....	115
ASIA.....	115
TOXIC AND HAZARDOUS CHEMICALS USED IN THE ELECTRONICS INDUSTRY.....	116
<i>TABLE 41 ELECTRONIC GAS APPLICATIONS AND CLIMATE         IMPACT</i> .....	116
FLUORINATED COMPOUNDS.....	116
Perfluorooctyl Sulfonates/Perfluoroalkyl Sulfonates (PFOS/PFAS).....	117
Polybrominated Diphenyl Ethers (PBDEs).....	117
Europe.....	118
LEAD.....	118
WASTE ELECTRONIC EQUIPMENT.....	118
CHAPTER TEN: INDUSTRY TRENDS.....	119
INDUSTRY COOPERATION/OWNERSHIP CHANGES.....	119
RESEARCH AND DEVELOPMENT.....	120
NEW INVESTMENTS AND EXPANSIONS.....	121
SHORTER DEVELOPMENT CYCLES.....	122
CHAPTER ELEVEN: MARKET SHARES AND PROFILES OF MAJOR PLAYERS.....	123
MARKET SHARES OF MAJOR PLAYERS.....	123
<i>TABLE 42 GLOBAL MARKET SHARES OF MAJOR PLAYERS IN THE         ELECTRONIC MATERIALS AND CHEMICALS INDUSTRY, 2009 (%)</i> ....	123
<i>FIGURE 17 GLOBAL MARKET SHARES OF MAJOR PLAYERS IN THE         ELECTRONIC MATERIALS AND CHEMICALS INDUSTRY, 2009 (%)</i> ....	124
COMPANY PROFILES.....	124
AIR LIQUIDE.....	124
AIR PRODUCTS AND CHEMICALS, INC.....	125
AZ ELECTRONIC MATERIALS.....	126
DUPONT AIR PRODUCTS NANOMATERIALS LLC (DA NANOMATERIALS).....	126
BASF.....	127
CABOT MICROELECTRONICS.....	127
HITACHI CHEMICAL CO.....	127
JSR CORP.....	128
KANTO CHEMICAL CO., INC.....	129
MEMC (MONSANTO ELECTRONIC MATERIALS CO.).....	129
NANOMAG CO. LTD., KOREA.....	130
ROHM AND HAAS.....	130

SHIN-ETSU HANDOTAI .....	131
SHOWA DENKO .....	131
SUMITOMO CHEMICAL .....	132
SUMITOMO MITSUBISHI SILICON CORP. ....	132
TOKYO OHKA KOGYO .....	133
WACKER GROUP .....	134
OTHER PLAYERS .....	134
Chevron Phillips Chemical Co. ....	134
Chisso America Inc. ....	135
Cyantek Inc. ....	135
DIC Corp. ....	135
Dongwoo Fine Chemicals Co., Ltd. ....	135
Dongjin Semichem .....	136
DuPont Electronic Technologies .....	136
FMC Industrial Chemicals .....	136
Forge Europa Ltd. ....	136
General Chemical Corp. ....	136
Honeywell Specialty Materials Group .....	137
IBM Corp. ....	137
MacDermid, Inc. ....	137
Matheson Tri-Gas, Inc. ....	137
Nanocrystals Technology, Ltd. ....	138
Nantero, Inc. ....	138
Praxair, Inc. ....	138
RD Chemical .....	139
Solvay S.A .....	139
Toyo Nippon Sanso Corp. ....	139
UNIDYM .....	139
APPENDIX: PATENTS .....	140
COMPOSITIONS .....	140
CMP COMPOSITION OF BORON SURFACE-MODIFIED	
ABRASIVE AND NITRO-SUBSTITUTED SULFONIC ACID	
AND METHOD OF USE .....	140
COMPOSITION AND METHOD FOR COPPER CHEMICAL	
MECHANICAL PLANARIZATION .....	141
COMPOSITION AND ASSOCIATED METHODS FOR	
CHEMICAL MECHANICAL PLANARIZATION HAVING	
HIGH SELECTIVITY FOR METAL REMOVAL .....	142
COMPOSITIONS AND PROCESSES FOR IMMERSION	
LITHOGRAPHY .....	143
PHOTORESIST COMPOSITIONS COMPRISING ACETALS	
AND KETALS AS SOLVENTS .....	144
APPLICATION DEVELOPMENT .....	145

SUPERCritical CARBON DIOXIDE-BASED CLEANING OF METAL LINES .....	145
COATING MATERIAL FOR FORMING TRANSPARENT AND CONDUCTIVE FILM .....	145
HIGH PH SLURRY FOR CHEMICAL MECHANICAL POLISHING OF COPPER .....	146
REACTIVE MESOGENIC BENZODITHIOPHENES.....	147
PROCESS TECHNOLOGY .....	147
PROCESS FOR PRODUCING PHOTORESIST POLYMERIC COMPOUNDS.....	147
PROCESS FOR PRODUCING POLYIMIDE.....	148
PROCESS FOR PRODUCING POLYMER COMPOUNDS .....	149
METHOD FOR PRODUCING HIGH-PURITY SULFURIC ACID .....	149
SEMICONDUCTOR NANOPARTICLES COATED WITH ELECTROACTIVE POLYMERS .....	150
METHOD FOR THE PREPARATION OF A SEMICONDUCTOR DEVICE.....	151
Method for the Preparation (Continued) .....	152