

INTRODUCTION	XI
STUDY GOALS AND OBJECTIVES.....	XI
REASONS FOR DOING THE STUDY	XI
CONTRIBUTION OF THE STUDY.....	XI
SCOPE.....	XI
METHODOLOGY AND INFORMATION SOURCES.....	XII
RELATED BCC RESEARCH REPORTS.....	XII
MONTHLY NEWSLETTER	XII
BCC ONLINE SERVICES.....	XII
SUMMARY.....	XIV
<i>SUMMARY TABLE OVERALL VALUE OF U.S. CONSUMPTION OF PAINT</i>	
<i>ADDITIVES BY MAJOR PRODUCT GROUP, THROUGH 2007 (\$ MILLIONS)</i>	XIV
<i>SUMMARY FIGURE OVERALL U.S. CONSUMPTION OF PAINT ADDITIVES BY</i>	
<i>MAJOR PRODUCT GROUP, 2002-2007 (\$ MILLIONS)</i>	XV
THE PAINT AND COATINGS INDUSTRY.....	1
ECONOMICS	1
<i>TABLE 1 U.S. SHIPMENTS AND VALUE OF PAINTS AND COATINGS BY TYPE:</i>	
<i>1986-2001 (MILLIONS OF GALLONS, \$ MILLIONS)</i>	2
PAINT MANUFACTURERS	2
TECHNOLOGY	3
RAW MATERIALS.....	3
RESINS.....	3
Polyurethanes	3
Epoxies	3
Polyesters.....	4
Acrylics.....	4
Vinyls	4
Alkyds	4
Other Resins	5
PIGMENTS.....	5
SOLVENTS.....	5
ADDITIVES.....	6
PAINT MANUFACTURE.....	6
EQUIPMENT	7
COMPOUNDING AND FORMULATING	7
COATING TYPES.....	7
ARCHITECTURAL COATINGS	8
Shipments	8
<i>TABLE 2 U.S. SHIPMENTS OF WATER-BASED ARCHITECTURAL COATINGS,</i>	
<i>THROUGH 2001 (MILLIONS OF GALLONS)</i>	8
PRODUCT FINISHES	9
SPECIAL PURPOSE COATINGS	9

FORMULATION TYPES.....	9
WATER-BASED COATINGS	9
Water-based Coating Types	10
Additives	10
Advantages and Disadvantages	11
HIGH-SOLIDS COATINGS.....	11
Additives	12
Advantages and Disadvantages	12
POWDER COATINGS	12
Powder Coating Types.....	12
Advantages and Disadvantages.....	13
Additives	13
RADIATION-CURABLE COATINGS	13
Processes	14
Electron Beam (EB) Systems	14
Ultraviolet (UV) Curing Systems.....	14
Advantages and Disadvantages.....	14
RESEARCH AND DEVELOPMENT	14
PATENTS	15
ADDITIVE TYPES	16
THICKENERS	16
SUPPLIERS	17
BIOCIDES.....	17
SUPPLIERS	18
FOAM CONTROL AGENTS	18
SUPPLIERS	19
SURFACTANTS.....	19
SUPPLIERS	20
PLASTICIZERS	20
SUPPLIERS	20
DRIERS	20
SUPPLIERS	21
CORROSION INHIBITORS.....	21
SUPPLIERS	22
UV STABILIZERS	22
ADHESION PROMOTERS	22
SUPPLIERS	23
MISCELLANEOUS	23
ANTIBLOCK AGENTS.....	23
ANTIFLOOD AGENTS.....	23
ANTIOXIDANTS.....	23
ANTISETTLING AGENTS.....	24
ANTISTATIC AGENTS	24
COALESCING AGENTS	24

COUPLING AGENTS	24
CURING AGENTS	24
FLAME RETARDANTS	24
FLATTING AIDS	25
OTHERS	25
MARKET ANALYSIS	26
OVERVIEW	26
FORECAST	26
TABLE 3 OVERALL U.S. CONSUMPTION OF PAINT ADDITIVES BY MAJOR PRODUCT GROUP, THROUGH 2007 (MILLIONS OF POUNDS)	26
TABLE 4 OVERALL VALUE OF U.S. CONSUMPTION OF PAINT ADDITIVES BY MAJOR PRODUCT GROUP, THROUGH 2007 (\$ MILLIONS)	27
FIGURE 1 OVERALL VALUE OF U.S. CONSUMPTION OF PAINT ADDITIVES BY MAJOR PRODUCT GROUP, 2002-2007 (\$ MILLIONS)	27
MARKET BY PRODUCT	28
THICKENERS	28
Consumption	28
Forecast	28
TABLE 5 U.S. CONSUMPTION OF PAINT THICKENERS BY MAJOR PRODUCT, THROUGH 2007 (MILLIONS OF POUNDS)	28
TABLE 6 VALUE OF U.S. CONSUMPTION OF PAINT THICKENERS BY MAJOR PRODUCT, THROUGH 2007 (\$ MILLIONS)	29
FIGURE 2 VALUE OF U.S. CONSUMPTION OF PAINT THICKENERS BY MAJOR PRODUCT, 2002-2007 (\$ MILLIONS)	29
BIOCIDES	30
Consumption	30
Forecast	30
TABLE 7 U.S. CONSUMPTION OF BIOCIDES IN PAINT BY PRODUCT TYPE, THROUGH 2007 (MILLIONS OF POUNDS)	30
TABLE 8 VALUE OF U.S. CONSUMPTION OF BIOCIDES IN PAINT BY PRODUCT TYPE, THROUGH 2007 (\$ MILLIONS)	31
FIGURE 3 VALUE OF U.S. CONSUMPTION OF BIOCIDES IN PAINT BY PRODUCT TYPE, 2002-2007 (\$ MILLIONS)	31
CORROSION INHIBITORS	31
Consumption	31
Forecast	32
TABLE 9 CONSUMPTION OF CORROSION INHIBITORS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (MILLIONS OF POUNDS)	32
TABLE 10 VALUE OF U.S. CONSUMPTION OF CORROSION INHIBITORS IN PAINT BY MAJOR PRODUCT GROUP, THROUGH 2007 (\$ MILLIONS)	32
FIGURE 4 VALUE OF U.S. CONSUMPTION OF CORROSION INHIBITORS IN PAINT BY MAJOR PRODUCT GROUP, 2002-2007 (\$ MILLIONS)	33
SURFACTANTS	33
Consumption	33
Forecast	33
TABLE 11 U.S. CONSUMPTION OF SURFACTANTS IN PAINT BY MAJOR PRODUCT GROUP, THROUGH 2007 (MILLIONS OF POUNDS)	34

TABLE 12 U.S. VALUE OF CONSUMPTION OF SURFACTANTS IN PAINT BY MAJOR PRODUCT GROUP, THROUGH 2007 (\$ MILLIONS).....	34
FIGURE 5 U.S. VALUE OF CONSUMPTION OF SURFACTANTS IN PAINT BY MAJOR PRODUCT GROUP, 2002-2007 (\$ MILLIONS).....	35
PLASTICIZERS.....	35
Consumption.....	35
Forecast.....	35
TABLE 13 U.S. CONSUMPTION OF PLASTICIZERS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (MILLIONS OF POUNDS).....	36
TABLE 14 VALUE OF U.S. CONSUMPTION OF PLASTICIZERS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (\$ MILLIONS).....	36
FIGURE 6 VALUE OF U.S. CONSUMPTION OF PLASTICIZERS IN PAINT BY MAJOR PRODUCT, 2002-2007 (\$ MILLIONS)	37
FOAM CONTROL AGENTS.....	37
Consumption.....	37
Forecast.....	37
TABLE 15 U.S. CONSUMPTION OF FOAM CONTROL AGENTS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (MILLIONS OF POUNDS)	38
TABLE 16 VALUE OF U.S. CONSUMPTION OF FOAM CONTROL AGENTS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (\$ MILLIONS).....	38
FIGURE 7 VALUE OF U.S. CONSUMPTION OF FOAM CONTROL AGENTS IN PAINT BY MAJOR PRODUCT, 2002-2007 (\$ MILLIONS)	39
DRIERS	39
Consumption.....	39
Forecast.....	39
TABLE 17 U.S. CONSUMPTION OF DRIERS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (MILLIONS OF POUNDS).....	40
TABLE 18 VALUE OF U.S. CONSUMPTION OF DRIERS IN PAINT BY MAJOR PRODUCT, THROUGH 2007 (\$ MILLIONS).....	40
FIGURE 8 VALUE OF U.S. CONSUMPTION OF DRIERS IN PAINT BY MAJOR PRODUCT, 2002-2007 (\$ MILLIONS).....	41
ADHESION PROMOTERS.....	41
Consumption and Forecast	41
TABLE 19 U.S. CONSUMPTION OF ADHESION PROMOTERS IN PAINT, THROUGH 2007	41
MISCELLANEOUS ADDITIVES	42
Consumption and Forecast	42
TABLE 20 U.S. CONSUMPTION OF MISCELLANEOUS PAINT ADDITIVES, THROUGH 2007.....	42
MARKET BY FORMULATION TYPE.....	42
CONSUMPTION	42
FORECAST.....	43
TABLE 21 U.S. CONSUMPTION OF PAINT ADDITIVES BY FORMULATION TYPE, THROUGH 2007 (MILLIONS OF POUNDS).....	43
TABLE 22 VALUE OF U.S. CONSUMPTION OF PAINT ADDITIVES BY FORMULATION TYPE, THROUGH 2007 (\$ MILLIONS)	43
FIGURE 9 VALUE OF U.S. CONSUMPTION OF PAINT ADDITIVES BY FORMULATION TYPE, 2002-2007 (\$ MILLIONS).....	44
MARKET BY COATING TYPE.....	44
CONSUMPTION.....	44

FORECAST.....	44
TABLE 23 U.S. CONSUMPTION OF PAINT ADDITIVES BY COATING TYPE, THROUGH 2007 (MILLIONS OF POUNDS).....	45
TABLE 24 VALUE OF U.S. CONSUMPTION OF PAINT ADDITIVES BY COATING TYPE, THROUGH 2007 (\$ MILLIONS).....	45
FIGURE 10 VALUE OF U.S. CONSUMPTION OF PAINT ADDITIVES BY COATING TYPE, 2002-2007 (\$ MILLIONS).....	45
GOVERNMENT REGULATIONS	46
AIR POLLUTION	46
RULE 66	46
THE CLEAN AIR ACT OF 1990	47
THE TOXIC RELEASE INVENTORY.....	47
NONATTAINMENT PROVISIONS	48
AIR TOXICS PROVISIONS.....	48
PERMITS PROGRAM.....	48
RECENT DEVELOPMENTS	49
INDUSTRY STRUCTURE	50
COMPANY CONCENTRATION.....	50
TABLE 25 SALES OF MAJOR PRODUCERS OF PAINT ADDITIVES, 2002 (\$ MILLIONS)	50
MARKETING AND DISTRIBUTION.....	51
MARKETING AND DISTRIBUTION (CONTINUED)	52
INTERNATIONAL ASPECTS	53
GOVERNMENT REGULATIONS	53
FOREIGN OWNERSHIP.....	53
TABLE 26 SELECTED FOREIGN-OWNED ADDITIVE SUPPLIERS	54
COMPANY PROFILES	55
AIR PRODUCTS AND CHEMICALS, INC.	55
AKZO NOBEL CHEMICALS, INC.	55
ALBRIGHT & WILSON AMERICAS.....	56
AMERICAN CASEIN CORP.	56
ANGUS CHEMICAL CO.	56
ARCH CHEMICALS, INC.	57
AVECIA, INC.	57
BASF CORP.	58
BAYER CORP.	58
BUCKMAN LABORATORIES INTERNATIONAL	58
BYK-CHEMIE USA	59
CABOT CORP.	59
CAMBREX CORP.	59
CIBA SPECIALTY CHEMICALS	60
CLARIANT CORP.....	60
CREANOVA, INC.	60

CROMPTON CORP.	61
CYTEC INDUSTRIES, INC.	61
DEGUSSA CORP.	61
DEXTER CHEMICAL CORP.	62
DOVER CHEMICAL CO.	62
DOW CHEMICAL CO.	62
DOW CORNING CORP.	63
ASHLAND SPECIALTY CHEMICAL CO.	63
EASTMAN CHEMICAL CO.	63
ELEMENTIS SPECIALTIES, INC.	64
ESTRON CHEMICAL, INC.	64
FERRO CORP.	65
HENKEL CORP.	65
HERCULES, INC.	65
HULS AMERICA, INC.	66
ICI SURFACTANTS	66
INTERNATIONAL SPECIALTY PRODUCTS	66
KING INDUSTRIES, INC.	67
LUBRIZOL CORP.	67
MAYZO, INC.	67
MINERAL PIGMENTS CORP.	68
OM GROUP, INC.	68
ONDEO NALCO CO.	68
RHODIA INC.	68
ROHM AND HAAS	69
SHEPHERD CHEMICAL CO.	69
SOLUTIA, INC.	69
TROY CORP.	70
WACKER SILICONES CORP.	70

APPENDIX I: LIST OF SELECTED PATENTS AND ABSTRACTS FOR

PAINT ADDITIVES	71
U.S. PATENT 6,361,826	71
U.S. PATENT 6,297,331	71
U.S. PATENT 6,294,006	71
U.S. PATENT 6,146,762	72
U.S. PATENT: 6,113,989	72
U.S. PATENT 5,989,329	72
U.S. PATENT 5,916,947	72
U.S. PATENT 5,861,523	73
U.S. PATENT 5,551,409	73
U.S. PATENT 5,384,163	73
U.S. PATENT 5,320,673	74
U.S. PATENT 5,116,407	74
U.S. PATENT 5,025,038	74