

## TABLE OF CONTENTS

<b>1 EXECUTIVE SUMMARY .....</b>	<b>8</b>
<b>2 METHODOLOGY .....</b>	<b>12</b>
2.1 Quantitative data collection.....	13
2.2 Qualitative data collection .....	14
2.3 Market forecasting .....	15
<b>3 NANOTECHNOLOGY IN PERSONAL CARE, COSMETICS, SUNSCREENS, HOUSEHOLD CARE, PACKAGING AND LEISURE WEAR &amp; EQUIPMENT.....</b>	<b>16</b>
3.1 Market revenues, 2008-2015.....	17
3.1.1 Brand & product security .....	20
3.1.1.1 Security and authentication taggants .....	20
3.1.1.2 Supply chain tracking .....	21
3.1.1.3 Global revenues 2008-2015 .....	21
3.1.2 Personal care .....	22
3.1.2.1 Cosmetics & Toiletries .....	23
3.1.2.2 Sunscreens.....	23
3.1.2.3 Dental products .....	24
3.1.2.4 Global revenues 2008-2015 .....	24
3.1.3 Household care.....	24
3.1.3.1 Controlled release fragrancing .....	25
3.1.3.2 Paints .....	25
3.1.3.3 Self-cleaning coatings .....	26
3.1.3.4 Easy clean hygienic surfaces .....	26
3.1.3.5 Global revenues 2008-2015 .....	29
3.1.4 Packaging.....	29
3.1.4.1 Antimicrobial coatings .....	30
3.1.4.2 Structural reinforcement.....	35
3.1.4.3 Gas barrier coatings & films .....	37
3.1.4.4 Printable RFID.....	38
3.1.4.5 UV Resistant Plastic .....	39
3.1.4.6 Food Quality Sensors.....	40

3.1.4.7	Electronic displays.....	41
3.1.4.8	Global revenues 2008-2015 .....	41
3.1.5	Leisure wear & equipment.....	43
3.1.5.1	Sports equipment.....	44
3.1.5.2	Sportswear and clothing .....	46
3.1.5.3	Global revenues 2008-2015 .....	47
3.1.6	Standards and regulation .....	48
<b>4</b>	<b>COMPANY PROFILES .....</b>	<b>54</b>
4.1	PERSONAL CARE .....	54
4.1.1	Advanced Nanotechnology Ltd.....	54
4.1.2	Antaria Limited .....	54
4.1.3	Aquamarijn Micro Filtration bv.....	55
4.1.4	Aquanova .....	56
4.1.5	Argonide .....	56
4.1.6	BASF .....	57
4.1.7	Beiersdorf.....	58
4.1.8	Ferro Corporation.....	58
4.1.9	Five Star Technologies Inc. ....	59
4.1.10	EKA Chemicals.....	60
4.1.11	geniaLab®BioTechnologie .....	60
4.1.12	Isehan.....	61
4.1.13	Lipoid GmbH .....	62
4.1.14	L'Oreal .....	62
4.1.15	Lancome .....	63
4.1.16	Nanobio .....	63
4.1.17	Nanophase .....	64
4.1.18	NaturalNano.....	64
4.1.19	Nanoscape.....	64
4.1.20	PVA TePla America.....	65
4.1.21	Salvona Technologies Inc. ....	66
4.1.22	Tsinghua Yuanxing Bio-Pharm. Co., Ltd.....	66
4.1.23	Vivamer .....	67
4.2	HOUSEHOLD CARE .....	68
4.2.1	Bayer.....	68
4.2.2	Bio-Gate .....	68

4.2.3	Bioni Paints .....	69
4.2.4	Celanese Chemicals Europe GmbH.....	69
4.2.5	CVD Technologies Ltd.....	69
4.2.6	De Cie GmbH .....	69
4.2.7	Green Millennium Inc. ....	70
4.2.8	Erlus Lotus .....	70
4.2.9	Industrial Nanotech Inc. ....	70
4.2.10	MCH Nanosolutions.....	71
4.2.11	Nano Care Ag.....	71
4.2.12	NanoCover A/S.....	71
4.2.13	Nanogate Coating Systems GmbH .....	72
4.2.14	Nano Hygiene Coatings Ltd .....	72
4.2.15	nanoproofed ® Illing GbR.....	73
4.2.16	Nanosol AG .....	73
4.2.17	Nanotec Pty Ltd.....	74
4.2.18	Nanovations .....	74
4.2.19	NANO-X GmbH .....	74
4.2.20	NaturalNano .....	75
4.2.21	Ngimat Co .....	75
4.2.22	NTC Nano Tech Coatings GmbH .....	75
4.2.23	N-Tec GmbH .....	76
4.2.24	PChem Associates, Inc.....	76
4.2.25	Percenta AG .....	77
4.2.26	Pilkington.....	77
4.2.27	Saint Goban Glass.....	78
4.2.28	Sarastro GmbH.....	78
4.2.29	Sto.....	78
4.2.30	Sumitomo Osaka Cement Co., Ltd .....	78
4.2.31	TCNano ApS.....	79
4.3	PACKAGING .....	79
4.3.1	Alcoa CSI.....	79
4.3.2	Bernard Technologies.....	79
4.3.3	Bio-Gate .....	80
4.3.4	Buhler .....	80
4.3.5	Cambridge Display Technology.....	81

4.3.6	Ciba Irgaguard .....	83
4.3.7	Dow Chemical .....	83
4.3.8	Elementis.....	84
4.3.9	Engelhard .....	84
4.3.10	Honeywell.....	85
4.3.11	ICA Trinova .....	85
4.3.12	InMat Inc.....	86
4.3.13	IQ Materials .....	87
4.3.14	Kuraray.....	87
4.3.15	LC ChemLtd. ....	88
4.3.16	Mitsubishi Gas Chemical .....	88
4.3.17	Nanocor .....	88
4.3.18	NanoHorizons.....	89
4.3.19	NanoMas.....	89
4.3.20	Nanux .....	90
4.3.21	NaturalNano .....	91
4.3.22	nGimat.....	91
4.3.23	nSec .....	92
4.3.24	NovaCentrix .....	93
4.3.25	Plextronics.....	93
4.3.26	Polyera.....	94
4.3.27	Polyone Corp.....	94
4.3.28	Southern Clay Products.....	95
4.3.29	Triton Systems .....	95
4.4	LEISURE EQUIPMENT .....	97
4.4.1	Nano-Group Holdings Ltd. ....	97
4.4.2	Integran.....	97
4.4.3	P2i Ltd. ....	98
4.4.4	Peratech .....	99
4.4.5	Surface Innovations.....	100
4.4.6	XeroCoat.....	100
4.5	BRAND & PRODUCT SECURITY .....	102
4.5.1	Authentix.....	102
4.5.2	AR Mark.....	102
4.5.3	CSIRO Materials Science & Engineering (CMSE).....	102

*Key Products and Players, Global Markets and Applications for Nanotechnology in Personal Care, Cosmetics, Household Care, Packaging and Leisure Wear & Equipment*

4.5.4	DGTec .....	103
4.5.5	Evident Technologies.....	104
4.5.6	ID Global .....	105
4.5.7	Ingenia Technology .....	105
4.5.8	Invitrogen.....	105
4.5.9	Micromem Inc.....	106
4.5.10	Microtrace Solutions .....	106
4.5.11	Nanoco Technologies Ltd .....	107
4.5.12	Nanoink .....	107
4.5.13	Nanoplex .....	108
4.5.14	Nanoventions.....	108
4.5.15	Opalux .....	108