

TABLE OF CONTENTS

1.	INTRODUCTION.....	10
2.	DEFINITIONS AND NOMENCLATURE.....	11
3.	NANOTECHNOLOGY RESEARCH AND DEVELOPMENT LABORATORIES IN THE CZECH REPUBLIC.....	13
3.1	LABORATORIES OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	13
3.1.1	INSTITUTE OF BIOPHYSICS AS CR, a public research institution (IBP)	14
3.1.2	BIOLOGY CENTRE AS CR, a public research institution (BC).....	17
3.1.2.1	Biology centre AS CR, Institute of Parasitology	18
3.1.2.2	Biology centre of the AS CR, Institute of Plant Molecular Biology	19
3.1.3	INSTITUTE OF BIOTECHNOLOGY AS CR, a public research institution (IBT)	20
3.1.4	INSTITUTE OF BOTANY OF THE AS CR, a public research institution.....	22
3.1.5	GLOBAL CHANGE RESEARCH CENTRE AS CR, A PUBLIC RESEARCH INSTITUTION (GCRC)	23
3.1.6	INSTITUTE OF PHYSICS AS CR, a public research institution (FZU).....	24
3.1.7	INSTITUTE OF PHYSIOLOGY AS CR, a public research institution (FGÚ)	37
3.1.8	INSTITUTE OF GEOLOGY AS CR, a public research institution.....	42
3.1.9	INSTITUTE OF MICROBIOLOGY OF THE AS CR, a public research institution (MBÚ)	43
3.1.10	INSTITUTE OF ANALYTICAL CHEMISTRY AS CR, a public research institution (IACH).....	47
3.1.11	INSTITUTE OF INORGANIC CHEMISTRY AS CR, a public research institution (ÚACH)	49
3.1.12	INSTITUTE OF EXPERIMENTAL BOTANY AS CR, a public research institution (ÚEB).....	53
3.1.13	INSTITUTE OF EXPERIMENTAL MEDICINE AS CR, a public research institution (IEM).....	54
3.1.14	J. HEYROVSKÝ INSTITUTE OF PHYSICAL CHEMISTRY AS CR, a public research institution (JH INST).....	58
3.1.15	INSTITUTE OF PHYSICS OF MATERIALS AS CR, a public research institution (IPM).....	65
3.1.16	INSTITUTE OF PLASMA PHYSICS AS CR, a public research institution (IPP)	68
3.1.17	INSTITUTE OF CHEMICAL PROCESS FUNDAMENTALS AS CR, a public research institution (ICPF)	70
3.1.18	INSTITUTE OF COMPUTER SCIENCE, a public research institution	73
3.1.19	INSTITUTE OF NUCLEAR PHYSICS AS CR, a public research institution (ÚJF).....	74
3.1.20	INSTITUTE OF MACROMOLECULAR CHEMISTRY CR, a public research institution (IMC)	78
3.1.21	INSTITUTE OF MOLECULAR GENETICS AS CR, a public research institution (IMG)	86
3.1.22	INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY AS CR, a public research institution (ÚOCHB).....	93
3.1.23	INSTITUTE OF HYDRODYNAMICS AS CR, a public research institution.....	96
3.1.24	INSTITUTE OF SCIENTIFIC INSTRUMENTS AS CR, a public research institution (ISI).....	97
3.1.25	INSTITUTE OF ROCK STRUCTURE AND MECHANICS AS CR, a public research institution (IRSM)	101
3.1.26	INSTITUTE OF THEORETICAL AND APPLIED MECHANICS AS CR, a public research institution (ITAM).....	103
3.1.27	INSTITUTE OF THERMOMECHANICS AS CR, a public research institution (IT).....	104
3.1.28	INSTITUTE OF ANIMAL PHYSIOLOGY AND GENETICS AS CR, a public research institution (IAPG)	106
3.1.29	INSTITUTE FOR HYDRODYNAMICS AS CR, a public research institution	108
3.2	UNIVERSITIES.....	109
3.2.1	CHARLES UNIVERSITY IN PRAGUE (cu).....	109
3.2.1.1	1st Faculty of Medicine CU (1st LF).....	109
3.2.1.2	2nd Faculty of Medicine CU (2nd LF)	112
3.2.1.3	3rd Faculty of Medicine CU (3rd LF).....	114

3.2.1.4	Charles University Faculty of Medicine in Pilsen (LF in Pilsen).....	115
3.2.1.5	Faculty of Pharmaceuticals in Hradec Králové (FAF).....	115
3.2.1.6	Faculty of Science, Charles University (FS CU).....	116
3.2.1.7	Faculty of Mathematics and Physics (MFF).....	120
3.2.2	MASARYK UNIVERSITY IN BRNO (MU).....	127
3.2.2.1	Central European Institute of Technology (CEITEC).....	128
3.2.2.2	Faculty of Sciences (FS MU).....	132
3.2.3	CZECH TECHNICAL UNIVERSITY, PRAGUE (CTU).....	137
3.2.3.1	Faculty of Civil Engineering (FCE CTU).....	137
3.2.3.2	Faculty of Mechanical Engineering (FME CTU).....	139
3.2.3.3	Faculty of Electrical Engineering (FEE CTU).....	142
3.2.3.4	Faculty of Nuclear Science and Physical Engineering (FNSPE CTU).....	144
3.2.3.5	Faculty of Biomedical Engineering (FBME CTU).....	149
3.2.3.6	Faculty of Transportation Sciences (FTS CTU).....	150
3.2.3.7	Institute of Experimental and Applied Physics (IEAP).....	151
3.2.4	BRNO UNIVERSITY OF TECHNOLOGY (BUT).....	151
3.2.4.1	The Faculty of Electrical Engineering and Communication (FEEC BUT).....	152
3.2.4.2	Faculty of Chemistry (FCH BUT).....	156
3.2.4.3	Faculty of Civil Engineering (FCE BUT).....	160
3.2.4.4	Faculty of Mechanical Engineering (FME BUT).....	162
3.2.5	INSTITUTE OF CHEMICAL TECHNOLOGY, PRAGUE (ICT).....	165
3.2.5.1	Faculty of Chemical Technology (FCHT ICT).....	166
3.2.5.2	Faculty of Chemical Engineering (FCE TCI).....	171
3.2.5.3	Faculty of Food and Biochemical Technology (FFBT ICT).....	174
3.2.6	UNIVERSITY OF WEST BOHEMIA IN PILSEN (UWB).....	175
3.2.6.1	Faculty of Applied Science (FAS UWB).....	175
3.2.6.2	Faculty of Mechanical Engineering (FME UWB).....	178
3.2.7	TECHNICAL UNIVERSITY OF LIBEREC (TUL).....	179
3.2.7.1	Faculty of Mechanical Engineering (FME TUL).....	180
3.2.7.2	Faculty of Textile Engineering (FT TUL).....	183
3.2.7.3	Faculty of Science, Humanities and Education (FE TUL).....	185
3.2.7.4	Faculty of Mechatronics and Interdisciplinary Engineering Studies (FM TUL).....	186
3.2.8	JAN EVANGELISTA PURKYNĚ UNIVERSITY IN ÚSTÍ NAD LABEM (UJEP).....	187
3.2.8.1	Faculty of Sciences (FS UJEP).....	187
3.2.9	UNIVERSITY OF PARDUBICE (UPA).....	189
3.2.9.1	Faculty of Chemical Technology (FChT UPa).....	189
3.2.10	MINING UNIVERSITY – TECHNICAL UNIVERSITY OF OSTRAVA (TUO).....	192
3.2.10.1	Faculty of Metallurgy and Material Engineering (FMME TUO).....	193
3.2.10.2	Faculty of Mechanical Engineering (FME TUO).....	195
3.2.10.3	Faculty of Mining and Geology (FMG TUO).....	196
3.2.10.4	Faculty of Safety Engineering (FSE TUO).....	198
3.2.10.5	Nanotechnology Centre (CNT TUO).....	198
3.2.11	PALACKÝ UNIVERSITY IN OLOMOUČ (UPOL).....	203
3.2.11.1	Faculty of Science (FS UPOL).....	203
3.2.11.2	Faculty of Medicine and Dentistry (LF UPOL).....	208
3.2.12	TOMAS BATA UNIVERSITY IN ZLÍN (TBU).....	210
3.2.12.1	Faculty of Technology (FT TBU).....	211
3.2.13	UNIVERSITY OF SOUTH BOHEMIA IN ČESKÉ BUDĚJOVICE (USB).....	214
3.2.13.1	Faculty of Science (FS USB).....	214
3.2.13.2	Institute of Physical Biology (IPB USB).....	216

3.2.13.3	Faculty of Agriculture (FA USB).....	218
3.2.14	UNIVERSITY OF VETERINARY AND PHARMACEUTICAL SCIENCES BRNO (UVPS).....	218
3.2.14.1	Faculty of Veterinary Medicine (FVM).....	219
3.2.14.2	Faculty of Pharmacy UVPS Brno.....	220
3.2.15	MENDEL UNIVERSITY OF AGRICULTURE AND FORESTRY IN BRNO (MUAFF).....	220
3.2.15.1	Faculty of Agronomy (FA).....	221
3.2.16	UNIVERSITY OF OSTRAVA.....	222
3.2.16.1	Faculty of Science (FS UO).....	223
3.2.17	UNIVERSITY OF DEFENCE.....	223
3.2.17.1	Faculty of Military Health Sciences Hradec Králové (FMHS HK).....	224
3.2.18	CZECH UNIVERSITY OF LIFE SCIENCES IN PRAGUE (CULS).....	224
3.2.18.1	Faculty of the Environment (FE).....	225
3.2.18.2	Institute of Tropics and Subtropics (ITS).....	225
3.2.18.3	Faculty of Agrobiolgy, Food and Natural Resources (FAFNR).....	226
3.3	CONTRIBUTORY ORGANISATIONS OF GOVERNMENT MINISTRIES.....	227
3.3.1	INSTITUTE FOR CLINICAL AND EXPERIMENTAL MEDICINE (IK+EM).....	227
3.3.2	INSTITUTE OF HEMATOLOGY AND BLOOD TRANSFUSION (IHBT).....	228
3.3.3	MASARYK MEMORIAL CANCER INSTITUTE IN BRNO (MMCI).....	230
3.3.4	INSTITUTE OF ENDOCRINOLOGY (IE).....	231
3.3.5	PRAGUE PSYCHIATRIC CENTRE (PPC).....	233
3.3.6	RESEARCH INSTITUTE OF VETERINARY MEDICINE, BRNO (RIVM).....	234
3.3.7	NATIONAL INSTITUTE OF PUBLIC HEALTH (NLPH).....	236
3.3.8	CZECH METROLOGY INSTITUTE (CMI).....	237
3.3.9	TEXTILE TESTING INSTITUTE (TTI).....	239
3.3.10	OCCUPATIONAL SAFETY RESEARCH INSTITUTE (VÚBP).....	240
3.3.11	FOOD RESEARCH INSTITUTE PRAGUE (FRIP).....	240
3.3.12	VOP CZ, s.p.	241
3.3.13	RESEARCH INSTITUTE OF AGRICULTURAL ENGINEERING.....	242
3.3.14	INSTITUTE OF ANIMAL SCIENCE (IAS).....	242
3.3.15	CZECH GEOLOGICAL SERVICE (CGS).....	243
3.3.16	NATIONAL INSTITUTE FOR NUCLEAR, CHEMICAL AND BIOLOGICAL PROTECTION.....	243
3.4	PRIVATE SECTOR RESEARCH INSTITUTIONS.....	245
3.4.1	COMTES FHT a.s.....	245
3.4.2	ČESKÉ TECHNOLOGICKÉ CENTRUM PRO ANORGANICKÉ PIGMENTY A.S (The Czech Technological Centre for Inorganic Pigments).....	247
3.4.3	CZECH NANOTECHNOLOGY CLUSTER, ASSOCIATION (CNC).....	248
3.4.4	INSTITUTE OF MICROELECTRONIC APPLICATIONS INC. (IMA INC.).....	248
3.4.5	MOLECULAR CYBERNETIS, s.r.o.....	249
3.4.6	NANOMEDIC, A.S.	250
3.4.7	NANOPROGRES, Z.S.P.O.....	251
3.4.8	NÁRODNÍ TKÁŇOVÉ CENTRUM A.S (National Tissue Centre – NTC).....	252
3.4.9	POLYMER INSTITUTE BRNO, SPOL. S.R.O.....	254
3.4.10	SIGMA VÝZKUMNÝ A VÝVOJOVÝ ÚSTAV, S.R.O. (Sigma research and development institute).....	255
3.4.11	SPUR A.S.....	255
3.4.12	SVÚM A.S.....	257
3.4.13	SVÚOM, S.R.O.....	260
3.4.14	SYNPO, A.S.	260
3.4.15	TECHNOLOGY CENTRE AS CR (TC).....	263

3.4.16	VÝZKUMNÝ ÚSTAV ANORGANICKE CHEMIE, A.S. (Research institute of inorganic chemistry – VÚAnCh).....	265
3.4.17	VÚHŽ A.S.	266
3.4.18	VÚK PANENSKÉ BŘEŽANY, S.R.O.	267
3.4.19	VÝZKUMNÝ ÚSTAV ORGANICKÝCH SYNTEZ A.S. (Research institute of organic syntheses – VUOS)	269
3.4.20	VÝZKUMNÝ ÚSTAV PĚTAŘSKÝ, A.S. (VÚP)	270
3.4.21	VÝZKUMNÝ ÚSTAV TEXTILNÍCH STROJŮ – VÚTS A.S.....	270
3.4.22	NUCLEAR RESEARCH INSTITUTE RESEARCH INSTITUTE ŘEŽ PLC (NRI).....	271
3.4.23	RESEARCH INSTITUTE OF BREWING AND MALTING PLC	273
3.4.24	RESEARCH INSTITUTE OF BUILDING MATERIAL (VUSTAH)	273
3.4.25	ZKL — VÝZKUM A VÝVOJ, A.S. (ZKL – Research and Development).....	274
4.	MANUFACTURING COMPANIES.....	275
4.1	LARGE COMPANIES (more than 250 employees)	275
4.1.1	BARVY A LAKY HOSTIVAŘ, A.S.	275
4.1.2	BARVY A LAKY TELURIA, S.R.O.....	275
4.1.3	BUZULUK A.S.....	276
4.1.4	FEI CZECH REPUBLIC, S.R.O.	276
4.1.5	GEA HEAT EXCHANGERS, A.S.....	277
4.1.6	GUMÁRNÝ ZUBŘÍ, A.S.	278
4.1.7	HARFA PLUS S.R.O.....	278
4.1.8	HEDVA A.S.....	279
4.1.9	INTERPHARMA PRAHA, A.S.....	280
4.1.10	LANEX A.S.....	280
4.1.11	LASSELSBERGER, S.R.O.....	281
4.1.12	MAGNA EXTERIORS & INTERIORS (BOHEMIA), S.R.O.	281
4.1.13	MOMENTIVE SPECIALTY CHEMICALS A.S.....	282
4.1.14	PEGAS NONWOVENS S.R.O.....	283
4.1.15	POLIČSKÉ STROJÍRNÝ A.S.	283
4.1.16	RAVAK A.S.	284
4.1.17	SAFINA, A.S.	285
4.1.18	SAINT – GOBAIN ADVANCED CERAMICS, S.R.O.....	285
4.1.19	SPOLEK PRO CHEMICKOU A HUTNÍ VÝROBU, A.S. (Spolchemie).....	286
4.1.20	SYNTHOS KRALUPY A.S.....	287
4.1.21	TŘINECKÉ ŽELEZÁRNÝ, A.S.	288
4.1.22	ZENTIVA, A.S.	288
4.2	SMALL AND MEDIUM ENTERPRISES (UP TO 250 employees).....	290
4.2.1	5 M S.R.O.	290
4.2.2	ADVANCED MATERIALS JTJ, S.R.O.....	290
4.2.3	AGRITEC, RESEARCH, BREEDING& SERVICES, S.R.O.....	291
4.2.4	ARCADIS GEOTECHNIKA, A.S.....	291
4.2.5	ASIO, SPOL. S.R.O.....	292
4.2.6	ATG S.R.O. (ADVANCED TECHNOLOGY GROUP, spol. s r.o.).....	293
4.2.7	APRONEX S.R.O.....	294
4.2.8	AQUATEST A.S.....	294
4.2.9	BD SENSORS S.R.O.....	296
4.2.10	BIOMEDICA, SPOL. S.R.O.....	297
4.2.11	B.O.I.S.– FILTRY, SPOL. S.R.O.....	297
4.2.12	BioDevice Systems s.r.o.....	298
4.2.13	BVT TECHNOLOGIES, A.S.....	298

4.2.14	CB BIO, S.R.O.....	299
4.2.15	C2P, S.R.O.....	300
4.2.16	CENTEC AUTOMATIKA, SPOL. S.R.O.	300
4.2.17	CENTRAL EUROPEAN BIOSYSTEMS S.R.O.	301
4.2.18	CLEANTEX A.S.....	301
4.2.19	COMPO TECH PLUS, SPOL. S.R.O.	302
4.2.20	COLOR SPECTRUM A.S.....	302
4.2.21	CONTIPRO BIOTECH S.R.O.	303
4.2.22	CRYTUR, SPOL. S.R.O.....	305
4.2.23	DAKO BRNO SPOL. S.R.O.....	305
4.2.24	DELONG INSTRUMENTS A.S.....	306
4.2.25	DEKONTA, a.s.	307
4.2.26	ECOTEX S.R.O.	308
4.2.27	ELCERAM A.S.....	309
4.2.28	ELMARCO S.R.O.....	309
4.2.29	ENACON, S.R.O.	311
4.2.30	EURO SUPPORT MANUFACTURING CZECHIA, S.R.O.	312
4.2.31	EUTIT S.R.O.	312
4.2.32	EXBIO PRAHA, A.S.	313
4.2.33	FAVEA, SPOL. S.R.O.....	314
4.2.34	GASCONTROL PLAST, A.S.....	314
4.2.35	GENERI BIOTECH s.r.o.	315
4.2.36	GEOTEST BRNO, A.S.....	316
4.2.37	HET SPOL. S.R.O.....	316
4.2.38	HOFMEISTER, SPOL. S.R.O.....	317
4.2.39	HVM PLASMA, SPOL. S.R.O.....	317
4.2.40	H+A ECO CZ, S.R.O.....	318
4.2.41	CHEMCOMEX PRAHA, A.S.....	318
4.2.42	CHEMSTAR CZECH REPUBLIC, S.R.O.....	319
4.2.43	INOTEX SPOL. S.R.O.....	319
4.2.44	INSTITUTE OF APPLIED BIOTECHNOLOGIES A.S.....	321
4.2.45	IONBOND CZECHCOATING, S.R.O.	322
4.2.46	ISATECH, S.R.O.	322
4.2.47	J-VST, S.R.O.....	323
4.2.48	KERTAK NANOTECHNOLOGY, S.R.O.....	323
4.2.49	KNITVA, S.R.O.....	324
4.2.50	KRD—obchodní společnost s.r.o.	324
4.2.51	LAO — průmyslové systémy, s.r.o.	325
4.2.52	LICOLOR, A.S.	326
4.2.53	LIFETECH S.R.O.	326
4.2.54	LYCKEBY AMYLEX, A.S.	327
4.2.55	MILCOM, A.S.	327
4.2.56	MEDIHOPE S.R.O.	328
4.2.57	MEGA A.S.....	328
4.2.58	MEGA SYSTEM, SPOL. S.R.O.	329
4.2.59	MEMBRAIN, S.R.O.	330
4.2.60	MESING, SPOL. S.R.O.....	331
4.2.61	MEVI-CZ, S.R.O.....	332
4.2.62	MIKROCHEM LKT, SPOL. S.R.O.	332
4.2.63	MIKROPUR, S.R.O.....	333

4.2.64	MOLECULAR CYBERNETICS, S.R.O.	334
4.2.65	MORAVIAN - BIOTECHNOLOGY, SPOL. S.R.O.	334
4.2.66	NAFIGATE CORPORATION, A.S.	335
4.2.67	NANOBALA S.R.O.	335
4.2.68	NANO6 S.R.O.	336
4.2.69	NANOFUTURE, S.R.O.	336
4.2.70	NANOGRAPH S.R.O.	336
4.2.71	NANOIMPREG, SPOL. S.R.O.	337
4.2.72	NANOMAT, S.R.O.	337
4.2.73	NANOPHARMA, A.S.	337
4.2.74	NANOPRO S.R.O.	338
4.2.75	NANOPRODUKT, S.R.O.	338
4.2.76	NANOPROTEX S.R.O.	339
4.2.77	NANOSPOL, S.R.O.	339
4.2.78	NANO SYSTEMS, S.R.O.	339
4.2.79	NANOTEAM, S.R.O.	340
4.2.80	NANOTECH SERVICE CZ, S.R.O.	340
4.2.81	NANOVIA, S.R.O.	341
4.2.82	NANO ENERGIES, A.S.	341
4.2.83	NANO IRON, S.R.O.	342
4.2.84	NANOTRADE S.R.O.	342
4.2.85	NOLIAC CERAMICS S.R.O.	343
4.2.86	OLCHEMIM S.R.O.	344
4.2.87	OMEGA ALTERMED A.S.	344
4.2.88	OPTAGLIO S.R.O.	345
4.2.89	PARDAM S.R.O.	346
4.2.90	PILANA TOOLS KNIVES, S.R.O.	347
4.2.91	PILSEN TOOLS S.R.O.	347
4.2.92	POULEK SOLAR S.R.O.	348
4.2.93	PRIMECELL A.S.	348
4.2.94	PRO-AQUA CZ, S.R.O.	349
4.2.95	PROGEO, S.R.O.	349
4.2.96	PROSPON S.R.O.	350
4.2.97	PROTEIX S.R.O.	351
4.2.98	RADANAL S.R.O.	351
4.2.99	REFLEX s.r.o.	352
4.2.100	RICARDO PRAGUE S.R.O.	352
4.2.101	ROKOSPOL A.S.	353
4.2.102	SAFIBRA, S.R.O.	354
4.2.103	SEVAPHARMA A.S.	354
4.2.104	SHM, s.r.o.	355
4.2.105	SINBIO, S.R.O.	355
4.2.106	SOLARTEC SPOL. S.R.O.	356
4.2.107	SINTEX A.S.	357
4.2.108	STARMANS electronics, s.r.o.	357
4.2.109	SVCS PROCESS INNOVATION S.R.O.	358
4.2.110	TECHNISTONE, A.S.	359
4.2.111	TECHNOLOGIE A INOVACE O.S.	359
4.2.112	TERMIZO A.S.	360
4.2.113	TESCAN, A.S.	360

4.2.114	TIMPLANT S.R.O.	362
4.2.115	TOP-BIO, S.R.O.	363
4.2.116	TTS, S.R.O.	363
4.2.117	UJP PRAHA, A.S.	364
4.2.118	VAKOS XT A.S.	365
4.2.119	VIDIA SPOL. S.R.O.	365
4.2.120	VODNI ZDROJE CHRUDIM, S.R.O.	366
5.	OTHER ORGANISATIONS	367
5.1	The Czech Society for New Materials and Technologies	367
6.	EDUCATION IN NANOTECHNOLOGIES IN THE CZECH REPUBLIC	369
7.	HEALTH AND ENVIRONMENTAL PROTECTION ASPECTS OF NANOMATERIALS AND NANOTECHNOLOGIES	375
8.	STANDARDISATION IN NANOTECHNOLOGIES	378
9.	CONCLUSION	381