

Radioactivity Transfer in Environment and Food

Bearbeitet von
Fokion K Vosniakos

1. Auflage 2012. Buch. xvi, 148 S. Hardcover

ISBN 978 3 642 28740 4

Format (B x L): 15,5 x 23,5 cm

Gewicht: 415 g

Weitere Fachgebiete > Geologie, Geographie, Klima, Umwelt >
Umweltwissenschaften > Nuklearer Strahlenschutz, Methodologie

Zu Leseprobe

schnell und portofrei erhältlich bei


DIE FACHBUCHHANDLUNG

Die Online-Fachbuchhandlung beack-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

Contents

1	Status of the Problem.	1
1.1	Radionuclides Transfer Mechanism in the Atmosphere	1
1.1.1	Fission Products	3
1.1.2	Atmospheric Natural Radioactivity	5
1.1.3	Environmental and Food Radioactivity	8
1.1.4	Dose from a “Radioactive Cloud” and from Inhalation	9
1.1.5	Atmospheric Dispersion of Radioactivity	11
1.2	Environmental Impact from Nuclear Accidents	13
1.2.1	Information from the Fallout of a Thermonuclear Explosion	13
1.2.2	The Accident of Chernobyl	14
1.2.3	Worldwide Nuclear Power Status	17
1.3	The Impact of the Atmospheric Pollution on the Food Chain–Soil, Plant, Food	18
1.4	Formulation of Purpose and Tasks	21
2	Methods and Materials of Analysis.	23
2.1	Methods for Analyses of Atmospheric Radioactivity	23
2.1.1	Diffuse Radioactivity Measurements	24
2.1.2	Radionuclides Detection and Identification	25
2.1.3	Correlation with Meteorological Parameters	25
2.2	Methods for Analysis of the Impact of Atmospheric Contamination on the Food Chain (Soil, Plants, Foods)	26
2.2.1	Analysis of Soils and Plants	26
2.2.2	Foods Analysis	29
3	Results and Discussions	35
3.1	Studies on the Atmospheric and Environmental Radioactivity	35
3.1.1	Monitoring Airborne Radioactivity in the Industrial Area of Thessaloniki	35

3.1.2	Identification of Airborne Radionuclides in the Environment of Northern Greece	39
3.1.3	Measurements of the Atmospheric Radioactivity in Northern Greece	45
3.1.4	Study on the Diffuse Radioactivity and Radionuclides Identification in the Major Area of Sindos: Thessaloniki Before and After the “Chernobyl Cloud” Appearance. . .	48
3.1.5	Radionuclide Diffusion in the Environment	50
3.2	Transfer of Atmospheric Radioactivity in Soil and Plants.	52
3.2.1	Natural Radioactivity of the Soils in Northern Greece. . .	52
3.2.2	Concentration Level of ^{137}Cs in Greece One Decade After the Chernobyl Accident.	54
3.3	Transfer of Radioisotopes in Food Stuffs	66
3.3.1	Mechanism of the Transfer of ^{121}I and ^{137}Cs from Cow Milk to Cheese and other By-Products.	66
3.3.2	Mechanism of ^{131}I Transfer from Feta Cheese After Immersion in Water and in Brine	70
3.3.3	Study of ^{131}I Impact Over Lactic-Acid Micro-Flora of the Yogurt	75
3.3.4	Decontamination of Milk from the Radioactive Isotopes ^{131}I and $^{134,137}\text{Cs}$	78
3.3.5	The Preservation and Maturing of Dairy Products by using an Irradiation Process.	80
3.3.6	Investigation of Natural Radioactivity Concentration in Building Materials for Interior and Exterior Adornments in Modern Greek Style Constructions	85
3.3.7	The Marine Radioactivity.	91
3.3.8	Comparative Studies Concerning ^{137}Cs Effect on the Biological Status of Carp (<i>Cyprinus Carpio</i>) and Eel (<i>Anguilla Anguilla</i>)	94
4	General Discussion on the Results	101
4.1	The Fukushima Case	104
5	Basic Conclusions	105
Appendix A: Radioactive Concentrations in Geographic Peripherals of Greece		107

Appendix B: Radioactive Concentrations in the Prefectures of Greece	115
References	133
Index	145