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| Descrizione fisica | 1 online resource (ix, 120 pages) : illustrations |
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| Nota di contenuto | 1. Origin and Hydrogeochemistry of Fluoride in the Context of the Yemen Regime -- 2. Fluoride Geochemistry and Health Hazards: A Case Study -- 3. Fluoride Detection and Quantification, an Overview from Traditional to Innovative Material-Based Methods -- 4. Water Defluoridation Methods Applied in Rural Areas over the World -- 5. Sources of Human Overexposure to Fluoride, Its Toxicities, and Their Amelioration Using Natural Antioxidants -- 6. Ammonium Fluorides in |

Fluoride covers a continuum of topics that are frequently studied in the broad area of fluoride (F) research. It provides an overview of the primary sources of environmental fluoride in typical high-fluoride environments and demonstrates the transitions and transformations that emerge and culminate in hydro-geochemical interactions that result in fluoride-fouling of large portions of the world's water and agricultural resources. This way, the book pinpoints the connection between F enrichment of water sources and the prevalence of endemic fluorosis in certain areas of the world. In order to contribute to a better understanding of the global fluoride problem, new fluoride detection and quantification technologies are proposed with an in-depth analysis of emerging trends in the use of portable user-friendly devices in point-of-use measurements of water fluoride. This has been presented against the backdrop of a robust overview of traditional fluoride quantification methodologies that are still in wide application among the scientific communities. In addressing fluoride toxicities, which are not limited to dental and skeletal dilapidations, the authors have explored the role of natural antioxidants in ameliorating physiological fluoride-induced noxious effects in mammalian systems. Nonetheless, since community dependence on high-fluoride water due to a lack of alternative clean water sources remains to be the principal pathway of human fluoride over-exposure, a review chapter on F mitigation techniques applied all over the world is incorporated aiming at providing a succinct overview of water defluoridation techniques and strategies being used to combat the impacts of human F overexposure around the globe. Since every cloud has a silvery lining, the possibility of using ammonium fluorides as a novel reagent in mineral processing has been considered convenient industrial fluorinating agents, which present the possibility of complete regeneration that is not afforded by the reagents presently used in decomposing silicon component of the ores.