

Contents

1 Metasomatism and the Chemical Transformation of Rock: Rock-Mineral-Fluid Interaction in Terrestrial and Extraterrestrial Environments	1
Daniel E. Harlov and Håkon Austrheim	
2 The Chemical Composition of Metasomatic Fluids in the Crust	17
Bruce W.D. Yardley	
3 Thermodynamic Modeling and Thermobarometry of Metasomatized Rocks	53
Philippe Goncalves, Didier Marquer, Emilien Oliot, and Cyril Durand	
4 Structural Controls of Metasomatism on a Regional Scale	93
Mike Rubenach	
5 Mechanisms of Metasomatism and Metamorphism on the Local Mineral Scale: The Role of Dissolution-Reprecipitation During Mineral Re-equilibration	141
Andrew Putnis and Håkon Austrheim	
6 Geochronology of Metasomatic Events	171
Igor M. Villa and Michael L. Williams	
7 Effects of Metasomatism on Mineral Systems and Their Host Rocks: Alkali Metasomatism, Skarns, Greisens, Tourmalinites, Rodingites, Black-Wall Alteration and Listevenites	203
Franco Pirajno	
8 Metasomatism Within the Ocean Crust	253
Wolfgang Bach, Niels Jöns, and Frieder Klein	

9	Metasomatism in Subduction Zones of Subducted Oceanic Slabs, Mantle Wedges, and the Slab-Mantle Interface	289
	Gray E. Bebout	
10	Metasomatism During High-Pressure Metamorphism: Eclogites and Blueschist-Facies Rocks	351
	Reiner Klemm	
11	Prograde, Peak and Retrograde Metamorphic Fluids and Associated Metasomatism in Upper Amphibolite to Granulite Facies Transition Zones	415
	J.L.R. Touret and T.G. Nijland	
12	Mantle Metasomatism	471
	Suzanne Y. O'Reilly and W.L. Griffin	
13	Mapping the Distribution of Fluids in the Crust and Lithospheric Mantle Utilizing Geophysical Methods	535
	Martyn Unsworth and Stéphane Rondenay	
14	A Hydromechanical Model for Lower Crustal Fluid Flow	599
	J.A.D. Connolly and Y.Y. Podladchikov	
15	Metasomatism in the Early Solar System: The Record from Chondritic Meteorites	659
	Adrian J. Brearley and Alexander N. Krot	
	Index	791