### Table of Contents

**PART 1 EXPOSURE TO AMPHIBOLE-ASBESTOS AND MIXED FIBERS**

- Health experience of some U.S. and Canadian workers exposed to asbestos: foundation for risk assessment  
  A.M. Langer 9
- Environmental exposure to amphibole-asbestos and mesothelioma  
  K. Browne & J.C. Wagner 21
- Pleural malignant mesothelioma and environmental exposure to asbestos associated with asbestos-cement production: the case of Casale Monferrato, Italy  
  C. Magnani 29
- Lung-content analysis in cases of asbestos-related lung cancer and mesothelioma  
  F.D. Pooley 37
- Concentration and type of asbestos fibers in air inside buildings  
  R.P. Nolan & A.M. Langer 39
- Trends in incidence of mesothelioma and evaluation of exposure to asbestos  
  B. Price & R. Wilson 53

**Discussion**

**PART 2 EXPOSURE TO COMMERCIAL CHRYSOTILE – MINERALOGY, MODERN PRODUCTS AND EXPOSURES**

- Occurrence, production and uses of asbestos  
  M. Ross & R.L. Virta 79
- Controls of amphibole formation in chrysotile deposits: evidence from the Jeffrey mine, Asbestos, Quebec  
  A.E. Williams-Jones, C. Normand, J.R. Clark, H. Vali, R.F. Martin, A. Dufresne & A. Nayerzadeh 89
- Workplace monitoring in the chrysotile asbestos industry  
  A.L. Rickards 105
- Fiber release during the handling of products containing chrysotile asbestos using modern control technology  
  G.M. Bragg 111
- Concentrations of asbestos fibers in the general environment resulting from the use of modern, high-density chrysotile-asbestos-based products  
  J. Dunnigan 115
- Chrysotile, tremolite–actinolite and mesothelioma  
  F.D. Pooley & J.C. Wagner 119

**Discussion** 121

**Rapporteur’s report**  
M. Camus 127

**PART 3 MECHANISMS OF MESOTHELIOMA AND LUNG CANCER**

- Simian virus 40, asbestos, and the development of malignant mesotheliomas  
  A. Powers, P. Rizzo, I. Di Resta, C. Matker, W.M. Kast, L. Mutti, H.I. Pass & M. Carbone 135
p53 and the retinoblastoma gene family in human mesothelioma: the SV40 hypothesis  F. BALDI, A. BALDI, G. GIORDANO & A. GIORDANO 141

Dose, dimension, durability and biopersistence of chrysotile asbestos  N.F. JOHNSON & B.T. MOSSMAN 145

Discussion  155

Rapporteur’s report J.A. HOSKINS 157

PART 4  EXPOSURE TO COMMERCIAL CHRYSOTILE – HISTORICAL PERSPECTIVES OF THE HEALTH EFFECTS

Health effects associated with mining and milling chrysotile asbestos in Quebec and the role of tremolite G.W. GIBBS 165

The experience of the Balangero chrysotile asbestos mine in Italy: health effects among workers mining and milling asbestos and the health experience of persons living nearby S. SILVESTRI, C. MAGNANI, R. CALISTI & C. BRUNO 177


Pathological findings in the lungs of long-term Quebec chrysotile miners and millers: an analysis of 247 cases A. CHURG 207

Health experience of chrysotile-asbestos-cement workers in India S.P.V. CHANDRA RAO 213

Asbestos and environmental health in Japan T. HIGASHI & K. TAKAHASHI 215

Do risk assessments justify banning chrysotile or not? M. CAMUS 227

Discussion  239

Rapporteur’s report K. BROWNE 243

PART 5  EXPOSURE TO COMMERCIAL CHRYSOTILE – MODERN PERSPECTIVES OF THE HEALTH EFFECTS

Toxicological insights into low-level exposure to chrysotile J.A. HOSKINS 251

The recognition of health effects of low-level exposure to chrysotile: clinical considerations J.B.L. GEE 261

Risk assessment for asbestos and management of low levels of exposure to chrysotile R. WILSON & B. PRICE 265

Discussion  277

Rapporteur’s report R.P. NOLAN 279

GENERAL DISCUSSION OF FIVE TOPICS 283

SUMMARY OF THE SYMPOSIUM 291

GLOSSARY OF TERMS 297