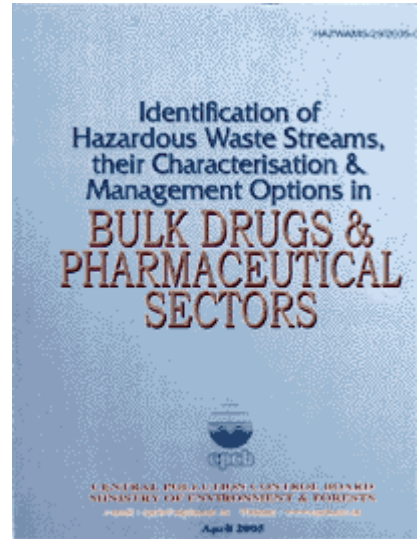


# Identification of Hazardous Waste Streams, Their Characterisation and Management Options in Bulk Drugs & Pharmaceutical Sectors

## Foreword

The Ministry of Environment & Forests (MoEF), Govt. of India has promulgated Hazardous Waste (Management & Handling) Rules, 1989 under the Environment (Protection) Act, 1986 which was subsequently amended in May 2003. According to these rules, the hazardous wastes are classified based on (i) 36 processes with waste streams (Schedule-I); (ii) Waste substances with concentration limit (Schedule II); and (iii) Characteristics of waste (Schedule-III).

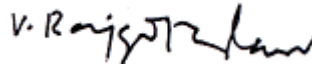
In order to provide technical assistance and information needed for identification of hazardous waste streams, its characterisation and waste management practices in specific industrial sector, the Central Pollution Control Board (CPCB) has taken up a project on "Identification of Hazardous Waste Streams, their Characterisation and Recovery/Recycling (Waste Minimisation) & Management Options in Bulk Drugs &



Pharmaceuticals Sector" in collaboration with the National Productivity Council (NPC), New Delhi. This report entails information on various hazardous waste streams generated in Bulk Drugs & Pharmaceuticals Sector, their quantification per tonne of product and characterisation of waste generated from various streams. The report also provides the hazardous waste management practices along with recycling, recovery options required for reduction of hazardous wastes.

Dr. Inamul Haq, Senior Scientist and Shri N.K. Verma, Addl. Director, were involved in co-ordination, evaluation and finalisation of report under the overall supervision of Dr. B. Sengupta, Member Secretary, CPCB. The information contained in this document has been collected through a survey & indepth study conducted by NPC in collaboration with CPCB. Necessary inputs provided by the industry representatives and members of its association during the interaction-meet organized by CPCB for finalisation of this document is acknowledged. Shri K.P. Rathi, data entry operator provided secretarial assistance.

We hope, this report on "Bulk Drugs & Pharmaceuticals Sector" will be useful for : industry, regulatory bodies and others who are concerned with hazardous waste -32 \ management.

  
(V. Rajagopalan)  
Chairman, CPCB