CONTENTS

ENVIRONMENTAL HEALTH CRITERIA FOR ETHYLBENZENE

| 1. | SUN | MAR' | Y is the second of the second | 19 |
|----|-----|--------|---|----|
| 2. | IDE | NTITY | , PHYSICAL AND CHEMICAL PROPERTIES, | |
| | ANI | DANA | LYTICAL METHODS | 21 |
| | 2.1 | Identi | ty | 21 |
| | 2.2 | Physic | cal and chemical properties | 21 |
| | | | ersion factors | 22 |
| | 2.4 | Analy | tical methods | 22 |
| | | 2.4.1 | Ethylbenzene in air | 22 |
| | | 2.4.2 | Ethylbenzene in water | 23 |
| | | 2.4.3 | Ethylbenzene in biological material | 24 |
| 81 | | | Metabolites of ethylbenzene in urine | 25 |
| 3. | SOU | IRCES | OF HUMAN AND ENVIRONMENTAL | |
| | | POSUR | | 27 |
| | 3.1 | Natura | al occurrence | 27 |
| | 3.2 | Anthr | opogenic sources | 27 |
| | | | Production processes | 27 |
| | | 3.2.2 | Production levels | 27 |
| | | 3.2.3 | Uses | 28 |
| | | | notion dealer date of | |
| 4. | EN | VIRON | IMENTAL TRANSPORT, DISTRIBUTION | |
| | AN | D TRA | NSFORMATION | 29 |
| d | 4.1 | Trans | port and distribution between media | 29 |
| | | 4.1.1 | | 29 |
| | | 4.1.2 | Water | 29 |
| | | 4.1.3 | Soil | 30 |
| | | 4.1.4 | Sediment | 32 |
| | 4.2 | Trans | formation | 32 |
| | | 4.2.1 | Biodegradation | 32 |
| | | | 4.2.1.1 Aerobic degradation | 32 |
| | | | 4.2.1.2 Anaerobic degradation | 34 |
| | | 4.2.2 | Abiotic degradation | 35 |
| | | | 4.2.2.1 Photolysis | 35 |
| | | | 4.2.2.2 Photo-oxidation | 35 |
| | | | 4.2.2.3 Hydrolysis | 36 |
| | | 4.2.3 | Bioaccumulation | 36 |

| 5. | EN | VIRONMENTAL LEVELS AND HUMAN | | | |
|----|----------|--|----|--|--|
| | EXPOSURE | | | | |
| | 5.1 | Environmental levels | 37 | | |
| | | 5.1.1 Air | 37 | | |
| | | 5.1.2 Surface water and sediment | 37 | | |
| | | 5.1.3 Groundwater | 42 | | |
| | | 5.1.4 Urban run-off, effluent and landfill | | | |
| | | leachate | 42 | | |
| | | 5.1.5 Soil | 43 | | |
| | | 5.1.6 Biota | 43 | | |
| | 5.2 | General population exposure | 44 | | |
| | | 5.2.1 Environmental sources | 44 | | |
| | | 5.2.2 Food | 46 | | |
| | | 5.2.3 Drinking-water | 47 | | |
| | 5.3 | Occupational exposure during manufacture, | | | |
| | | formulation or use | 47 | | |
| | | 5.3.1 Biological monitoring | 48 | | |
| 6. | KIN | NETICS AND METABOLISM IN LABORATORY | | | |
| | AN | IMALS AND HUMANS | 49 | | |
| | 6.1 | Absorption | 49 | | |
| | | 6.1.1 Skin absorption | 49 | | |
| | | 6.1.2 Absorption via inhalation | 50 | | |
| | | 6.1.3 Absorption after oral intake | 51 | | |
| | 6.2 | Distribution | 51 | | |
| | 6.3 | Metabolic transformation | 52 | | |
| | 6.4 | Elimination and excretion | 56 | | |
| 7. | EFF | FECTS ON LABORATORY MAMMALS AND | | | |
| | IN | VITRO TEST SYSTEMS | 58 | | |
| | 7.1 | Single exposure | 58 | | |
| | 7.2 | Short-term exposure | 58 | | |
| | 7.3 | Long-term exposure | 60 | | |
| | | 7.3.1 Oral exposure | 60 | | |
| | | 7.3.2 Inhalation exposure | 60 | | |
| | 7.4 | | 62 | | |
| | 7.5 | | | | |
| | | and teratogenicity | 62 | | |
| | 7.6 | Mutagenicity and related end-points | 63 | | |
| | 7.7 | Carcinogenicity | 64 | | |
| | 7.8 | | 64 | | |
| | 7.9 | Factors modifying toxicity | 66 | | |
| | | - motors mount jump to mount jump to make the motors and the motors and the motors are the motor | 00 | | |

| 8. | EFFECTS ON HUMANS | 67 | | | |
|-----|---|-----|--|--|--|
| | 8.1 Volunteer studies | 67 | | | |
| | 8.2 Occupational exposure | 67 | | | |
| 9. | EFFECTS ON OTHER ORGANISMS IN THE | | | | |
| | LABORATORY AND FIELD | 69 | | | |
| | 9.1 Microorganisms | 69 | | | |
| | 9.2 Aquatic organisms | 69 | | | |
| | 9.3 Terrestrial organisms | 72 | | | |
| 10. | EVALUATION OF HUMAN HEALTH RISKS AND | | | | |
| | EFFECTS ON THE ENVIRONMENT | 73 | | | |
| | 10.1 Evaluation of human health risks | 73 | | | |
| | 10.2 Evaluation of effects on the environment | 74 | | | |
| 11. | CONCLUSIONS | 77 | | | |
| 12. | FURTHER RESEARCH | 78 | | | |
| 13. | PREVIOUS EVALUATION BY | 79 | | | |
| | INTERNATIONAL BODIES | 15 | | | |
| | FERENCES | 80 | | | |
| RE | SUME | 98 | | | |
| | | | | | |
| RE | SUMEN | 100 | | | |
| | | | | | |
| | | | | | |