

ISO 4370:2022-07 (E)

Environmental life cycle assessment and recycling of ductile iron pipes for water applications

| Contents | | Page |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------|
| Foreword | | iv |
| Introduction | | v |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms and definitions | 1 |
| 4 | Basic concept of environmental life cycle assessment (E-LCA) | 2 |
| 4.1 | General | 2 |
| 4.2 | Definition of environmental life cycle assessment (E-LCA) | 2 |
| 4.3 | Calculation method of CO ₂ emissions | 3 |
| 4.4 | Other impacts | 3 |
| 5 | Breakdown of CO ₂ emissions | 4 |
| 5.1 | CO ₂ emissions at acquisition stage | 4 |
| 5.2 | CO ₂ emissions at operation stage | 4 |
| 5.3 | CO ₂ emissions at maintenance stage | 5 |
| 5.4 | CO ₂ emissions at end-of-life stage | 5 |
| 6 | Key drivers for environmental impact reduction | 5 |
| 6.1 | Durability | 5 |
| 6.1.1 | Reference service life (RSL) of DI pipes | 5 |
| 6.1.2 | In-use conditions | 6 |
| 6.1.3 | Service safety conditions | 6 |
| 6.2 | Leakage incident | 6 |
| 6.3 | Conveyance capacity | 7 |
| 6.3.1 | General | 7 |
| 6.3.2 | Functional unit of DI pipes | 7 |
| 6.4 | Optimum pipe wall thickness | 7 |
| 6.5 | Mechanical properties | 7 |
| 6.6 | Various pipe installation methods | 7 |
| 6.7 | Recyclability | 8 |
| 7 | Recycling | 8 |
| Annex A (informative) | Calculation methodology for CO ₂ emissions with provision for scrap recycling in ductile iron pipe production | 10 |
| Annex B (informative) | CO ₂ emissions with pump operation | 12 |
| Annex C (informative) | Scenario of CO ₂ emissions with different ductile iron pipelines | 15 |
| Bibliography | | 16 |