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 Termsanddefinitions 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 CO2 emissions 3
4.4 Other impacts 3

5 Breakdown of CO2 emissions 4
5.1 CO2 emissions at acquisition stage 4
5.2 CO2 emissions at operation stage 4
5.3 CO2 emissions at maintenance stage 5
5.4 CO2 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 CO2 emissions with provision for scrap recycling in ductile iron pipe production 10

Annex B (informative) CO2 emissions with pump operation 12

Annex C (informative) Scenario of CO2 emissions with different ductile iron pipelines 15

Bibliography 16