ISO/TS 20049-2:2020 (E)

Solid biofuels — Determination of self-heating of pelletized biofuels — Part 2: Basket heating tests

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Symbols

5 Basket heating tests

6 Tests for product classification

6.1 UN classification
6.1.1 General
6.1.2 Test method for self-heating substances — UN MTC Test N.4
6.1.3 Classification criteria — GHS
6.2 Classification criteria — IMO
6.3 Applicability of UN MTC Test N.4 for pelletized biofuels

7 Tests for determination of reaction kinetics

7.1 General
7.2 Isoperibolic test methods
7.2.1 General
7.2.2 Test procedure
7.2.3 Determination of reaction kinetics
7.2.4 Applicability for pelletized biofuels
7.3 Crossing-point method
7.3.1 General
7.3.2 Test procedure
7.3.3 Determination of reaction kinetics
7.3.4 Applicability for pelletized biofuels
7.4 Adiabatic hot storage tests
7.4.1 General
7.4.2 Test procedure
7.4.3 Determination of reaction kinetics
7.4.4 Applicability for pelletized biofuels

8 Sample handling

8.1 General
8.2 Sampling
8.3 Sample transport and storage
8.4 Sample preparation
8.5 Sample disposal

9 Test report

Annex A (informative) Example of calculating kinetic parameters from crossing-point method tests

Annex B (informative) Use of data for calculations of critical conditions in storages

B.1 The Frank-Kamenetskii stationary model

B.1.1 General
B.1.2 Basic assumptions
B.1.3 Corrections to the critical F-K parameter
B.1.3.1 General
B.1.3.2 Activation energy
B.1.3.3 Finite heat transfer coefficient
B.1.3.4 Reactant consumption
B.1.3.5 Oxygen diffusion
B.1.4 Limitations of methods based on “classic” F-K theory

Page count: 24