

# 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**