ISO 22975-3:2014-07 (E)

Solar energy - Collector components and materials - Part 3: Absorber surface durability

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Requirementsandclassification 2

5 Test methods for assessing material properties as measure of absorber performance 3
5.1 Sampling and preparation of test specimens 3
5.2 Sample conditioning 4
5.3 Solar absorptance 4
5.4 Thermal emittance 4
5.5 Adhesion 4

6 Tests for assessing the thermal stability of absorber surfaces 4
6.1 Principle 4
6.2 Apparatus 5
6.3 Procedure for execution of high temperature tests 6
6.4 Qualification procedure 7

7 Tests for determining the resistance to condensed water of absorber surfaces 7
7.1 Principle 7
7.2 Apparatus 8
7.3 Procedure for execution of constant condensation tests 9
7.4 Qualification procedure 10

8 Test for determining absorber surface corrosion resistance to high humidity air containing sulfur dioxide 10
8.1 Principle 10
8.2 Apparatus 11
8.3 Reference test specimen 12
8.4 Procedure for execution of corrosion test in high humidity air containing sulfur dioxide12 8.5 Determination of shortest acceptable failure times in test by use of reference test specimens 13
8.6 Qualification procedure 13

9 Test report 14

Annex A (normative) Procedure for determination of solar absorption and thermal emittance of absorber surfaces 15

Annex B (normative) Temperature and failure time characteristics in assessment of thermal stability of absorber surface 19

Annex C (normative) Temperature/condensation and failure time characteristics together withqualificationschemeinassessmentofresistancetocondensedwaterof absorber surface 25

Annex D (informative)Suitabledesignsfortestapparatustobeusedinthequalificationtestingof solar absorber surfaces 28

Bibliography 30