

---

---

## **Solid biofuels — Determination of grindability — Hardgrove type method for thermally treated biomass fuels**

*Biocombustibles solides — Détermination de la broyabilité —  
Méthode de type Hardgrove pour les combustibles de biomasses  
traitées thermiquement*



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

|                                                                                                                                                |           |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Foreword</b> .....                                                                                                                          | <b>iv</b> |
| <b>Introduction</b> .....                                                                                                                      | <b>v</b>  |
| <b>1 Scope</b> .....                                                                                                                           | <b>1</b>  |
| <b>2 Normative references</b> .....                                                                                                            | <b>1</b>  |
| <b>3 Terms and definitions</b> .....                                                                                                           | <b>1</b>  |
| <b>4 Principle</b> .....                                                                                                                       | <b>2</b>  |
| <b>5 Apparatus</b> .....                                                                                                                       | <b>2</b>  |
| 5.1 Standard HGI mill.....                                                                                                                     | 2         |
| 5.2 Sieves.....                                                                                                                                | 2         |
| 5.3 Glass measuring cylinder.....                                                                                                              | 2         |
| 5.4 Sieving machine.....                                                                                                                       | 3         |
| 5.5 Balance.....                                                                                                                               | 3         |
| 5.6 Cutting mill.....                                                                                                                          | 3         |
| <b>6 Sampling and sample preparation</b> .....                                                                                                 | <b>3</b>  |
| 6.1 General.....                                                                                                                               | 3         |
| 6.2 Moisture conditions.....                                                                                                                   | 3         |
| 6.3 Pre-grinding and sieving.....                                                                                                              | 3         |
| 6.4 Sample size.....                                                                                                                           | 3         |
| <b>7 Procedure</b> .....                                                                                                                       | <b>3</b>  |
| <b>8 Calculation</b> .....                                                                                                                     | <b>4</b>  |
| <b>9 Reproducibility</b> .....                                                                                                                 | <b>5</b>  |
| <b>10 Test report</b> .....                                                                                                                    | <b>5</b>  |
| <b>Annex A (normative) Calibration curve and thermally treated biomass grindability index (TTBGI) values for the reference materials</b> ..... | <b>6</b>  |
| <b>Bibliography</b> .....                                                                                                                      | <b>9</b>  |