

INTERNATIONAL  
STANDARD

ISO  
3483

First edition  
2023-06

---

---

---

**Copper and zinc sulfide  
concentrates — Determination  
of thallium — Acid digestion and  
inductively coupled plasma-mass  
spectrometry**

*Concentrés sulfurés de cuivre et de zinc — Dosage du thallium —  
Digestion acide et plasma à couplage inductif-spectrométrie de masse*





**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2023

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>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 Reagents</b>	<b>2</b>
<b>6 Apparatus</b>	<b>3</b>
<b>7 Sample</b>	<b>3</b>
7.1 Laboratory sample	3
7.2 Test sample	3
7.3 Test portion	3
<b>8 Procedure</b>	<b>4</b>
8.1 Number of determinations	4
8.2 Blank test	4
8.3 Dissolution of the test portion	4
8.4 Preparation of test solutions	4
8.5 Preparation of calibration solutions	4
8.6 Preparation of thallium calibration curve	5
8.7 Determination of thallium content in test solutions	5
<b>9 Expression of results</b>	<b>5</b>
<b>10 Precision</b>	<b>6</b>
10.1 Expression of precision	6
10.2 Method for obtaining the final result	6
10.3 Between-laboratories precision	6
10.4 Check of trueness	7
10.4.1 General	7
10.4.2 Type of certified reference material (CRM) or reference material (RM)	8
<b>11 Test report</b>	<b>8</b>
<b>Annex A (informative) Procedure for the preparation and determination of the mass of a pre-dried test portion</b>	<b>10</b>
<b>Annex B (normative) Procedure for obtaining the final result</b>	<b>12</b>