

INTERNATIONAL  
STANDARD

ISO  
11794

Second edition  
2017-06

---

---

**Copper, lead, zinc and nickel  
concentrates — Sampling of slurries**

*Concentrés de cuivre, de plomb, de zinc et de nickel —  
Échantillonnage des schlamms*



Reference number  
ISO 11794:2017(E)

© ISO 2017



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, 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  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

	Page
<b>Foreword</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>2</b>
<b>4 Principles of sampling slurries</b> .....	<b>2</b>
4.1 General.....	2
4.2 Sampling errors.....	3
4.2.1 General.....	3
4.2.2 Preparation error, PE.....	4
4.2.3 Delimitation and extraction errors, DE and EE.....	4
4.2.4 Weighting error, WE.....	6
4.2.5 Periodic quality-fluctuation error, QE <sub>3</sub> .....	6
4.3 Sampling and total variance.....	6
4.3.1 Sampling variance.....	6
4.3.2 Total variance.....	6
4.3.3 Sampling-stage method of estimating sampling and total variance.....	8
4.3.4 Simplified method of estimating sampling and total variance.....	9
4.3.5 Interleaved sample method of measuring total variance.....	10
<b>5 Establishing a sampling scheme</b> .....	<b>11</b>
<b>6 Minimization of bias and unbiased increment mass</b> .....	<b>16</b>
6.1 Minimization of bias.....	16
6.2 Volume of increment for falling-stream samplers to avoid bias.....	17
<b>7 Number of increments</b> .....	<b>17</b>
7.1 General.....	17
7.2 Simplified method.....	18
<b>8 Minimum mass of solids contained in lot and sub-lot samples</b> .....	<b>18</b>
8.1 Minimum mass of solids in lot samples.....	18
8.2 Minimum mass of solids in sub-lot samples.....	18
8.3 Minimum mass of solids in lot and sub-lot samples after size reduction.....	18
<b>9 Time-basis sampling</b> .....	<b>19</b>
9.1 General.....	19
9.2 Sampling interval.....	19
9.3 Cutters.....	19
9.4 Taking of increments.....	19
9.5 Constitution of lot or sub-lot samples.....	19
9.6 Division of increments and sub-lot samples.....	20
9.7 Division of lot samples.....	20
9.8 Number of cuts for division.....	20
<b>10 Stratified random sampling within fixed time intervals</b> .....	<b>20</b>
<b>11 Mechanical sampling from moving streams</b> .....	<b>21</b>
11.1 General.....	21
11.2 Design of the sampling system.....	21
11.2.1 Safety of operators.....	21
11.2.2 Location of sample cutters.....	21
11.2.3 Provision for duplicate sampling.....	21
11.2.4 System for checking the precision and bias.....	21
11.2.5 Avoiding bias.....	21
11.3 Slurry sample cutters.....	22
11.3.1 General.....	22
11.3.2 Falling-stream cutters.....	22