

# DIN EN ISO 20427:2024-10 (E)

## Pigments and extenders – Dispersion procedure for sedimentation-based particle sizing of suspended pigment or extender with liquid sedimentation methods (ISO 20427:2023)

---

<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>3</b>
<b>Foreword</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms and definitions</b> .....	<b>5</b>
<b>4 Principles of dispersion</b> .....	<b>7</b>
4.1 Principles of ultrasonic dispersion.....	7
4.2 Principle of wet jet mill dispersion.....	7
4.3 Principle of shaker-based dispersion.....	7
<b>5 Principles of sedimentation-based techniques for particle size analysis</b> .....	<b>8</b>
5.1 Stokesian sedimentation analysis.....	8
5.2 Disk-type centrifuges.....	8
5.3 Cuvette-type centrifuges.....	8
5.4 Gravitation-based sedimentation methods.....	8
5.5 Centrifugal field-flow fractionation method.....	9
<b>6 Apparatus</b> .....	<b>9</b>
<b>7 Settings for dispersion</b> .....	<b>11</b>
7.1 Procedure of ultrasonic dispersion using a probe-type sonicator.....	11
7.2 Procedure of ultrasonic dispersion using a bath-type sonicator.....	12
7.3 Procedure of shaker-based dispersion.....	12
<b>8 Dispersion procedure</b> .....	<b>13</b>
8.1 General.....	13
8.2 Sampling for dispersion.....	13
8.3 Reagents.....	13
8.4 Recommendations for sample preparation.....	14
<b>9 Sampling</b> .....	<b>14</b>
<b>10 Measurement and expression of results</b> .....	<b>14</b>
<b>11 Test report</b> .....	<b>14</b>
<b>Annex A (normative) Protocol for the determination of energy input</b> .....	<b>16</b>
<b>Annex B (informative) Limits for ultrasonic dispersion procedure</b> .....	<b>19</b>
<b>Annex C (informative) Procedures for dispersion of TiO<sub>2</sub> pigments</b> .....	<b>20</b>
<b>Annex D (informative) Procedure for dispersion of CaCO<sub>3</sub> with wet jet milling</b> .....	<b>21</b>
<b>Annex E (informative) Procedure for the dispersion of Fe<sub>2</sub>O<sub>3</sub> with an ultrasonic probe</b> .....	<b>22</b>
<b>Annex F (informative) Procedure for dispersion of carbon black</b> .....	<b>23</b>
<b>Annex G (informative) General procedure for dispersion of pigment or extender</b> .....	<b>24</b>
<b>Bibliography</b> .....	<b>26</b>