

# DIN EN 1423:2013-03 (E)

## Road marking materials - Drop on materials - Glass beads, antiskid aggregates and mixtures of the two

---

<b>Contents</b>		<b>Page</b>
Foreword .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	6
4	Requirements .....	7
4.1	Glass beads .....	7
4.1.1	Surface treatments of glass beads .....	7
4.1.2	Visibility characteristics .....	7
4.1.3	Granulometry .....	8
4.1.4	Dangerous substances .....	10
4.1.5	Durability aspects Resistance to chemicals: water, hydrochloric acid, calcium chloride and sodium sulphide .....	10
4.2	Transparent antiskid aggregates .....	10
4.2.1	pH value .....	10
4.2.2	Granulometry .....	10
4.2.3	Dangerous substances .....	12
4.2.4	Durability aspects Resistance to fragmentation (friability) .....	12
4.3	Non transparent antiskid aggregates .....	12
4.3.1	pH value .....	12
4.3.2	Visibility characteristics .....	12
4.3.3	Granulometry .....	13
4.3.4	Durability aspects Resistance to fragmentation (friability) .....	14
4.4	Mixtures of glass beads and antiskid aggregates .....	14
4.4.1	General .....	14
4.4.2	Durability aspects .....	15
5	Testing, assessment and sampling methods .....	15
5.1	General .....	15
5.2	Sampling .....	15
5.3	Glass beads .....	16
5.3.1	Surface treatments of glass beads .....	16
5.3.2	Visibility characteristics .....	16
5.3.3	Granulometry .....	16
5.3.4	Dangerous substances .....	16
5.3.5	Durability Resistance to chemicals: water, hydrochloric acid, calcium chloride and sodium sulphide .....	16
5.4	Transparent antiskid aggregates .....	16
5.4.1	pH value .....	16
5.4.2	Granulometry .....	17
5.4.3	Dangerous substances .....	17
5.4.4	Durability Resistance to fragmentation (friability) .....	17
5.5	Non transparent antiskid aggregates .....	17
5.5.1	pH value .....	17
5.5.2	Visibility Characteristics .....	17
5.5.3	Granulometry .....	17
5.5.4	Durability Resistance to fragmentation (friability) .....	17
5.6	Mixture of glass beads and antiskid aggregates .....	17

6	Evaluation of conformity .....	18
6.1	General .....	18
6.2	Initial type testing and type testing .....	18
6.2.1	General .....	18
03	EN ISO 15027-1:2012 (E) 6.2.2 Test samples, testing and compliance criteria .....	19
6.2.3	Test reports .....	21
6.3	Factory Production control (FPC) .....	21
6.3.1	General .....	21
6.3.2	Requirements .....	21
6.3.3	Product specific requirements .....	25
6.3.4	Initial inspection of factory and FPC .....	26
6.3.5	Continuous surveillance of FPC .....	26
6.3.6	Procedure for modifications .....	26
7	Marking .....	27
Annex A (normative) Test method to determine the refractive index of the glass beads .....		28
A.1	General .....	28
A.2	Principle .....	28
A.3	Equipment and materials .....	29
A.4	Procedure .....	30
A.5	Expression of the results .....	30
Annex B (normative) Test methods to determine the resistance of the glass beads to the effects of water, hydrochloric acid, calcium chloride and sodium sulphide .....		31
B.1	Resistance to the effects of water .....	31
B.2	Resistance to the effects of hydrochloric acid .....	31
B.3	Resistance to the effects of calcium chloride .....	31
B.4	Resistance to the effects of sodium Sulphide .....	31
Annex C (normative) Glass bead defects .....		33
C.1	Oval glass beads (see Figure C.1) .....	33
C.2	Satellites (see Figure C.2) .....	33
C.3	Tear shaped glass beads (see Figure C.3) .....	33
C.4	Glass beads fused together (see Figure C.4) .....	34
C.5	Roundish glass beads (see Figure C.5) .....	34
C.6	Opaque glass beads (see Figure C.6) .....	34
C.7	Milky glass beads (see Figure C.7) .....	35
C.8	Gas inclusions (see Figure C.8) .....	35
C.9	Grains (see Figure C.9) .....	35
C.10	Foreign particles .....	36
Annex D (normative) Test method to determine maximum weighted percentage of defective glass beads Procedure .....		37
D.1	General .....	37
D.2	Results of counting .....	38
Annex E (normative) Test method to determine the presence of the moisture proof coating .....		40
E.1	Procedure A .....	40
E.2	Procedure B .....	41
Annex F (normative) Test method to determine the presence of floatation coating .....		42
F.1	General .....	42

<b>F.2</b>	<b>Principle .....</b>	<b>42</b>
<b>F.3</b>	<b>Apparatus and reagents .....</b>	<b>42</b>
<b>F.4</b>	<b>Procedure .....</b>	<b>42</b>
<b>F.5</b>	<b>Results .....</b>	<b>42</b>
<b>Annex G (normative) Test method to determine the friability index of the antiskid aggregates .....</b>		<b>43</b>
<b>G.1</b>	<b>General .....</b>	<b>43</b>
<b>G.2</b>	<b>Apparatus .....</b>	<b>43</b>
<b>G.3</b>	<b>Material to be tested .....</b>	<b>43</b>
<b>G.4</b>	<b>Procedure .....</b>	<b>44</b>
<b>G.5</b>	<b>Expression of results .....</b>	<b>44</b>
<b>G.6</b>	<b>Precision .....</b>	<b>45</b>
<b>Annex H (informative) Alternative test methods to determine maximum weighted percentage of defective glass beads .....</b>		<b>46</b>
<b>H.1</b>	<b>General .....</b>	<b>46</b>
<b>H.2</b>	<b>Visual test method .....</b>	<b>46</b>
<b>H.3</b>	<b>Automatic test method .....</b>	<b>47</b>
<b>Annex I (normative) Test method to determine the presence of dangerous substances .....</b>		<b>53</b>
<b>I.1</b>	<b>Reference method .....</b>	<b>53</b>
<b>I.2</b>	<b>Quick alternative method .....</b>	<b>54</b>
<b>Annex J (normative) Test method to determine glass beads and antiskid aggregates ratio in mixtures of the two .....</b>		<b>55</b>
<b>J.1</b>	<b>General .....</b>	<b>55</b>
<b>J.2</b>	<b>Equipment and material .....</b>	<b>55</b>
<b>J.3</b>	<b>Procedure .....</b>	<b>55</b>
<b>J.4</b>	<b>Alternative methods .....</b>	<b>55</b>
<b>Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive .....</b>		<b>57</b>
<b>Bibliography .....</b>		<b>70</b>