

# DIN EN 544:2006-03 (E)

## Bitumen shingles with mineral and/or synthetic reinforcements - Product specification and test methods

---

<b>Contents</b>		<b>Page</b>
Foreword .....		4
Introduction .....		5
<b>1</b>	<b>Scope .....</b>	<b>6</b>
<b>2</b>	<b>Normative references .....</b>	<b>6</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>7</b>
<b>4</b>	<b>Requirements .....</b>	<b>9</b>
<b>4.1</b>	<b>Materials .....</b>	<b>9</b>
<b>4.1.1</b>	<b>Mass of bitumen .....</b>	<b>9</b>
<b>4.1.2</b>	<b>Upperside surfacing .....</b>	<b>9</b>
<b>4.1.3</b>	<b>Underside surfacing .....</b>	<b>9</b>
<b>4.2</b>	<b>Geometrical properties .....</b>	<b>9</b>
<b>4.2.1</b>	<b>Shapes .....</b>	<b>9</b>
<b>4.3</b>	<b>Mechanical properties .....</b>	<b>10</b>
<b>4.3.1</b>	<b>Tensile strength .....</b>	<b>10</b>
<b>4.3.2</b>	<b>Nail shank tear resistance .....</b>	<b>10</b>
<b>4.4</b>	<b>Durability .....</b>	<b>10</b>
<b>4.4.1</b>	<b>Water absorption .....</b>	<b>10</b>
<b>4.4.2</b>	<b>Resistance to UV radiation .....</b>	<b>10</b>
<b>4.4.3</b>	<b>Resistance to blistering .....</b>	<b>10</b>
<b>4.4.4</b>	<b>Flow resistance at elevated temperature .....</b>	<b>10</b>
<b>4.4.5</b>	<b>Adhesion of mineral granules or flakes of slate .....</b>	<b>10</b>
<b>4.4.6</b>	<b>Resistance to peeling for metal-surfaced shingles .....</b>	<b>11</b>
<b>4.5</b>	<b>Fire performance .....</b>	<b>11</b>
<b>4.5.1</b>	<b>Reaction to fire .....</b>	<b>11</b>
<b>4.5.2</b>	<b>External fire performance .....</b>	<b>11</b>
<b>5</b>	<b>Sampling .....</b>	<b>11</b>
<b>5.1</b>	<b>General .....</b>	<b>11</b>
<b>5.1.1</b>	<b>Cutting of test pieces .....</b>	<b>11</b>
<b>5.1.2</b>	<b>Marking of test pieces .....</b>	<b>12</b>
<b>5.2</b>	<b>Mass of bitumen .....</b>	<b>12</b>
<b>5.3</b>	<b>Geometrical tests .....</b>	<b>12</b>
<b>5.4</b>	<b>Tensile strength .....</b>	<b>12</b>
<b>5.5</b>	<b>Nail shank tear resistance .....</b>	<b>12</b>
<b>5.6</b>	<b>Water absorption .....</b>	<b>13</b>
<b>5.7</b>	<b>Resistance to UV radiation .....</b>	<b>14</b>
<b>5.8</b>	<b>Blistering .....</b>	<b>14</b>
<b>5.9</b>	<b>Flow resistance at elevated temperature .....</b>	<b>14</b>
<b>5.10</b>	<b>Adhesion of mineral granules and flakes of slate .....</b>	<b>14</b>
<b>5.11</b>	<b>Peeling for metal foil .....</b>	<b>14</b>
<b>5.12</b>	<b>Fire performance .....</b>	<b>14</b>
<b>5.12.1</b>	<b>Reaction to fire .....</b>	<b>14</b>
<b>5.12.2</b>	<b>External fire performance .....</b>	<b>14</b>
<b>6</b>	<b>Test methods .....</b>	<b>14</b>
<b>6.1</b>	<b>Sampling .....</b>	<b>14</b>

6.2	Mass of bitumen .....	14
6.2.1	Test conditions .....	14
6.2.2	Equipment .....	15
6.2.3	Procedure .....	15
6.2.4	Expression of results .....	15
6.3	Geometrical properties .....	15
6.3.1	Equipment .....	15
6.3.2	Check on widths .....	15
6.3.3	Check on heights .....	16
6.4	Mechanical properties .....	17
6.4.1	Tensile strength .....	17
6.4.2	Nail shank tear resistance .....	17
6.4.3	Water absorption .....	17
6.4.4	Resistance to UV radiation .....	18
6.4.5	Resistance to blistering .....	18
6.4.6	Flow resistance at elevated temperature .....	18
6.4.7	Adhesion of mineral granules and flakes of slate .....	19
6.4.8	Resistance to peeling metal foil .....	19
6.5	Fire performance .....	19
6.5.1	Reaction to fire .....	19
6.5.2	External fire performance .....	19
7	Evaluation of conformity .....	20
7.1	General .....	20
7.2	Initial type testing .....	20
7.3	Factory Production Control (FPC) .....	20
7.3.1	General .....	20
7.3.2	Equipment .....	20
7.3.3	Raw materials and components .....	20
7.3.4	Non-conforming products .....	21
7.3.5	Frequency of testing .....	21
7.3.6	Test methods .....	21
8	Designation and marking .....	21
8.1	Designation .....	21
8.2	Marking .....	22
Annex A (normative) Frequencies of testing for factory production control .....		23
Annex B (informative) Example of a product data sheet .....		24
B.1	General information .....	24
B.2	Properties .....	25
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive (89/106/EEC) .....		26
ZA.1	Scope and relevant clauses .....	26
ZA.2	Procedure for the attestation of conformity of bitumen shingles .....	29
ZA.2.1	Systems of attestation of conformity .....	29
ZA.2.2	EC Declaration of conformity .....	31
ZA.3	CE marking .....	32
Bibliography .....		34