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**Terminology Used for Forensic Footwear
and Tire Evidence**

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Terminology Used for Forensic Footwear and Tire Evidence

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410 North 21st Street
Colorado Springs, CO 80904

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Foreword

This document is a compilation of terms commonly used in footwear and tire examination. It was compiled from texts and publications used as common references in the field of forensic footwear and tire examination. Examiners should be familiar with these common terms and utilize them in notes, worksheets and reports. By using common terminology, the discipline will limit confusion and improve communication amongst examiners and when expressing findings to law enforcement, courts and juries.

This document was proposed by the Footwear and Tire Terminology Task Group, formed by the Footwear and Tire Examination Scientific Area Committee of the Organization of Scientific Area Committees.

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1 Terminology Used for Forensic Footwear and Tire Evidence

2 **1 Scope**

3 This technical report is targeted for forensic science professionals actively engaged in the discipline
4 of footwear and tire examination. It is not intended to define every term potentially applicable to
5 forensic footwear and tire evidence, but define commonly used terms in the discipline.

6 **2 Normative References**

7 There are no normative reference documents, Annex B, Bibliography, contains informative
8 references.

9 **3 Terms and Definitions**

10 **3.1**

11 **abrasion**

12 Wearing away rubber from tires by friction due to high speed, locked wheel braking. Abrasion will
13 be at right angles to the direction of travel, also on shoulder and sidewall.

14 **3.2**

15 **adhesive lifter**

16 Any material coated with a tacky substance for the purpose of lifting impressions.

17 **3.3**

18 **air bubble**

19 A globule of air trapped within a solid material such as a footwear outsole.

20 **3.4**

21 **alternate light source**

22 Equipment used to produce light (or to restrict light) at various wavelengths to enhance or
23 visualize potential items of evidence.

24 **3.5**

25 **aspect ratio**

26 The proportion of the tire's height to its width.

27 **3.6**

28 **asymmetric tread design**

29 A tire tread pattern divided circumferentially, such that one half of the tread design is not a mirror
30 image of the other half.

31 **3.7**

32 **bead**

33 A hoop of steel wires within a tire that hold the tire on the rim.

34 **3.8**

35 **bias tire**

36 A tire that has plies which cross over one another at an angle.

- 37 **3.9**
 38 **bias-belted tire**
 39 A bias tire with added reinforced belts that lie beneath the tread.
- 40 **3.10**
 41 **BIO-FOAM^{®a}**
 42 A commercial product comprised of collapsible foam developed for recording of footwear outsoles.
- 43 **3.11**
 44 **biscuit**
 45 Pre-formed or extruded pieces of soling compound that are placed in molds and pressed into the
 46 shape of a footwear outsole or heel.
- 47 **3.12**
 48 **blade**
 49 Thin pieces of metal in footwear and tire molds that result in molded sipes.
- 50 **3.13**
 51 **blocker**
 52 An oversized outsole made of one or more components that is later cut to size.
- 53 **3.14**
 54 **blunt force pattern injury**
 55 An injury to the skin by a blunt object resulting in the transference of the pattern design of the
 56 object due to subcutaneous hemorrhaging. (Also known as a **pattern contusion**.)
- 57 **3.15**
 58 **Brannock Device^{®b}**
 59 A foot-measuring device.
- 60 **3.16**
 61 **CAD/CAM**
 62 **Computer Aided Design/ Computer Aided Manufacturing**
 63 Computer systems used to design and manufacture footwear and tires.
- 64 **3.17**
 65 **calendering**
 66 A process where raw rubber passes between a series of large steel rollers. The final roller
 67 impresses the outsole design into the rubber that is later cut into soles. Rollers are also used to help
 68 prepare raw rubber for the production of rubber biscuits for the compression molding process.
- 69 **3.18**
 70 **carcass**
 71 The portion of the tire that includes the liner, plies, belts, and beads which forms the foundation for
 72 the tread and sidewall.

^a This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

^b This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

- 73 **3.19**
 74 **cast**
 75 A method of preserving and recovering three-dimensional impressions utilizing a casting material
 76 that replicates the impression's features.
- 77 **3.20**
 78 **casting material**
 79 Dental stone, snow print powder, sulfur, or other suitable materials specifically used to accurately
 80 recover three-dimensional impressions. Some casting materials are also successful for lifting two-
 81 dimensional impressions.
- 82 **3.21**
 83 **center rib**
 84 A row of continuous rubber or disconnected tire tread blocks around the circumference of a tire
 85 and is evenly centered within the tire tread design.
- 86 **3.22**
 87 **chart board**
 88 A solid laminated board with a covering of white paper on at least one side (not foam core board)
 89 used to provide a firm and smooth backing when obtaining known tire impressions.
- 90 **3.23**
 91 **chemical etching**
 92 A process wherein a textured pattern is applied to selective areas of a mold surface. The mold is
 93 later dipped in an acid bath that etches the pattern into the mold. The details within a chemically
 94 etched pattern are specific to an original mold.
- 95 **3.24**
 96 **class characteristic**
 97 A feature shared by two or more items of footwear or tires. The footwear outsole or tire tread
 98 design and the physical size features of a footwear outsole or tire tread are two common
 99 manufactured class characteristics. General wear of the outsole or tire tread is also a class
 100 characteristic. Class characteristics establish membership within a specific group.
- 101 **3.25**
 102 **clicker**
 103 A hydraulic machine that forces a steel die through outsole and/or midsole materials in a cookie-
 104 cutter fashion.
- 105 **3.26**
 106 **coaxial light**
 107 Illumination from the precise direction of the imaging lens (e.g. either through the lens or with a
 108 beam-splitter in front of the lens).
- 109 **3.27**
 110 **compression molding**
 111 A method for making footwear outsoles and tires where the material is placed into an open mold,
 112 which is then closed and subjected to heat, time, and pressure.

- 113 **3.28**
114 **cord**
115 Fabrics placed under tension and covered with rubber. Used to form the plies of the tire.
- 116 **3.29**
117 **correspondence**
118 An interpretation that observed similarities between compared items (e.g., questioned impressions
119 and known footwear or tires) are in agreement.
- 120 **3.30**
121 **degree of wear**
122 The extent to which the design of a footwear outsole or tire tread has been changed due to erosion.
- 123 **3.31**
124 **dental stone**
125 A generic gypsum product generally having a strength rating of 8,000 psi or higher, commonly used
126 to cast footwear and tire impressions.
- 127 **3.32**
128 **design**
129 The manufactured pattern of a footwear outsole or tire tread. Design is a class characteristic.
- 130 **3.33**
131 **design/size relationship**
132 The tendency for a footwear outsole or tire tread design to have either more design elements, or
133 larger design elements, or both, as the footwear or tire size increases throughout the size range
134 produced.
- 135 **3.34**
136 **die cut**
137 Outsoles or other footwear components produced by forcing a sharpened steel die through pre-
138 formed outsole material with the assistance of a clicker machine.
- 139 **3.35**
140 **direct attach**
141 A manufacturing process where the upper of the footwear is joined to the midsole or outsole
142 material.
- 143 **3.36**
144 **directional tread design**
145 A tire tread pattern that is designed or intended to rotate in one direction only.
- 146 **3.37**
147 **dissimilarity**
148 An observation that characteristics have the appearance of being potentially different but do not
149 meet the criteria for an exclusionary difference. This observation could be caused by numerous
150 factors including but not limited to the impression-making process, factors prior to recovery,
151 and/or the recovery process.

- 152 **3.38**
153 **distinguishing characteristic(s)**
154 Feature(s) on a footwear or tire, including manufacturing variables/defects and characteristics of
155 use, that may be used to differentiate the item from others of the same class.
- 156 **3.39**
157 **distortion**
158 An unclear or inaccurate representation of the footwear or tire in an impression due to interference
159 in the impression-making process or its subsequent retrieval
- 160 **3.40**
161 **DOT number**
162 Department of Transportation serial number assigned to every tire sold in the United States which
163 gives information regarding the manufacturer, size, and date of manufacture of the tire.
- 164 **3.41**
165 **dry casting**
166 A method utilizing the layering of dry dental stone powder and misted water.
- 167 **3.42**
168 **dry origin impression**
169 An impression formed when the substrate, materials being transferred, and the outsole or tire tread
170 are dry (e.g. footwear impressions in dust).
- 171 **3.43**
172 **dual tire assembly**
173 A pair of tires mounted side-by-side on a fixed wheel assembly.
- 174 **3.44**
175 **electrical discharge machine**
176 **EDM**
177 A machine which uses electrical discharges to produce a desired design in a footwear or tire mold.
- 178 **3.45**
179 **electrostatic detection apparatus**
180 **ESDA®**
181 **electrostatic detection device**
182 An instrument used to visualize paper fiber disturbances (e.g. indentations, erasures, typewritten
183 material/lift off, footwear and tire impressions).
- 184 **3.46**
185 **electrostatic lifting**
186 The process of using an electrostatic charge to transfer dry origin impressions from the substrate to
187 a film.
- 188 **3.47**
189 **element**
190 A single geometric component of a footwear outsole or tire tread design.

- 191 **3.48**
 192 **elimination impressions, photographs, and/or items**
 193 Footwear or tires, or recordings of footwear outsoles or tire treads, from sources such as police
 194 officers, paramedics and their vehicles for the purpose of comparing to the questioned crime scene
 195 impressions.
- 196 **3.49**
 197 **enhancement**
 198 Improving the visibility of an impression through physical, photographic, digital, optical, or
 199 chemical means.
- 200 **3.50**
 201 **ethylene vinyl acetate**
 202 **EVA**
 203 A soling compound often produced in an expanded form.
- 204 **3.51**
 205 **examination quality photograph**
 206 A photograph that is scalable and captures a sufficient level of detail that allows for the conducting
 207 a forensic footwear and tire examination.
- 208 **3.52**
 209 **exclusion**
 210 The known footwear or tire exhibits differences in class characteristics or distinguishing
 211 characteristics that indicate the footwear or tire did not make the questioned impression and thus
 212 is not part of the pool of potential sources for the questioned impression.
- 213 **3.53**
 214 **exclusionary difference**
 215 A difference in one or more characteristics between compared items that is sufficient to determine
 216 that the compared items did not originate from the same source, are not the same source, or do not
 217 share the same composition or classification. NOTE: What is sufficient depends on the performance
 218 and limitations of the method used on the material in question.
- 219 **3.54**
 220 **exemplar**
 221 See **test impression**.
- 222 **3.55**
 223 **feathering (tires)**
 224 Wear pattern where tire tread ribs are worn lower/smoothed on one side and higher/sharper on
 225 the other side.
- 226 **3.56**
 227 **fixative**
 228 A process or reagent that helps secure the blood to the substrate or secures the substrate itself (e.g.
 229 snow, sand, etc.) so that it is not destroyed or degraded during chemical enhancement.

230	3.57	
231	flash	
232	flashing	
233		Excess material from the molding process.
234	3.58	
235	footwear	
236		Any apparel worn on the foot, such as shoes, boots, sandals, etc.
237	3.59	
238	forensic light source	
239		A filtered light source that may be fixed or tunable to a variety of spectral ranges.
240	3.60	
241	foxing	
242	foxing strip	
243		A strip of rubber wrapped around the lower part of some footwear to cover the gap or seam
244		between the upper and the outsole.
245	3.61	
246	full impression	
247		An impression that represents all, or nearly all, of the heel to toe portions of the outsole or the full
248		width and circumference of the tire.
249	3.62	
250	gelatin lifter	
251		A commercial product with gelatin applied to a pliable backing used to lift impressions.
252	3.63	
253	general outsole design	
254		A general category of footwear outsole patterns (e.g. herringbone pattern, lugged outsole pattern,
255		wave pattern, and plain soles).
256	3.64	
257	general wear	
258		The condition (degree and position of wear) of the overall footwear outsole or tire tread, ranging
259		from new to extremely worn, related to its degree of use. General wear is a class characteristic that
260		may be used to include or exclude footwear or tires.
261	3.65	
262	grooves	
263		The space or channels that separate the tire tread ribs and elements. Circumferential grooves run
264		around the circumference of the tire. Transverse or lateral grooves, also known as slots, run across
265		the tire tread design.
266	3.66	
267	holes	
268		The result of erosion of a footwear outsole or tire tread that is so extreme that it results in removal
269		of the outer layers of the outsole or tread materials, often resulting in irregular edges.

- 270 **3.67**
 271 **Identicator^c**
 272 An inkless method of recording footwear impressions on white chemically treated paper.
- 273 **3.68**
 274 **identification**
 275 The highest degree of association assigned to a questioned impression and known source based on
 276 the agreement of class and randomly acquired characteristics when there is sufficient quality and
 277 quantity of information.
- 278 **3.69**
 279 **impression**
 280 The product of direct or indirect physical contact between a footwear or tire and the substrate
 281 resulting in the transfer and retention of characteristics of that item.
- 282 **3.70**
 283 **injection molding**
 284 A manufacturing method where the outsole and/or midsole is made by forcing material into a
 285 closed mold. Outsoles can be molded individually as unit soles or directly onto the footwear upper
 286 as direct attach outsoles.
- 287 **3.71**
 288 **insole**
 289 A cushioned liner that occupies the inner surface of an item of footwear where the foot rests and is
 290 placed there for comfort or protection. The insole may or may not be removable.
- 291 **3.72**
 292 **known impression**
 293 See **test impression**.
- 294 **3.73**
 295 **known footwear or tire**
 296 A footwear or a tire of known origin that is compared to a questioned footwear or tire impression.
- 297 **3.74**
 298 **label (manufacturer's sizing label)**
 299 A label placed on the tongue or other inside surface of the footwear that contains information
 300 including but not limited to the manufacturer's name, shoe size, country of manufacturer, style
 301 number, dating information, barcodes, etc.
- 302 **3.75**
 303 **latent impression**
 304 An impression not readily visible to the naked eye.

^c This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

- 305 **3.76**
 306 **last**
 307 A form made of wood, metal, or synthetic material that approximates the size and shape of a foot.
 308 The upper of the footwear is stretched over the last and held in a specific shape and size throughout
 309 the manufacturing process. The size on the manufacturer's label is directly related to the size of the
 310 last.
- 311 **3.77**
 312 **lift**
 313 An adhesive or other medium used to capture and preserve an impression.
- 314 **3.78**
 315 **liner**
 316 A thin layer of butyl rubber compound that holds the air inside the tire.
- 317 **3.79**
 318 **logo**
 319 A name, design, or pattern that is the trademark of the manufacturer that may appear on the
 320 footwear upper or on the outsole.
- 321 **3.80**
 322 **low profile**
 323 A term describing a tire that has a low aspect ratio, thus a short sidewall.
- 324 **3.81**
 325 **manufacturing defect**
 326 Unintended damage, defects or flaws in the footwear outsole or tire tread that occurs during
 327 manufacturing.
- 328 **3.82**
 329 **manufacturing variable**
 330 Features that occur during the manufacturing process that do not appear on all of the
 331 footwear/tires but may appear on more than one. Examples would be the precise positioning of
 332 foxing strips, the precise cutting of die cut or Wellman cut soles, the positioning of stitching that is
 333 added to the bottom of some soles, or a bent sipe blade in a tire mold, etc.
- 334 **3.83**
 335 **Mikrosil™^d**
 336 Silicone casting material used to lift footwear impressions that have been treated with fingerprint
 337 powder.
- 338 **3.84**
 339 **midsole**
 340 A component positioned between the upper and the outsole on some footwear to provide
 341 cushioning and support.

^d This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

- 342 **3.85**
 343 **mold**
 344 A metal cavity containing a footwear outsole or tire tread design used to produce footwear or tires.
- 345 **3.86**
 346 **mold characteristic**
 347 Those design and size features of a particular mold.
- 348 **3.87**
 349 **mold cure**
 350 Term used by tire manufacturers to describe the vulcanization of a tire in the molding process.
- 351 **3.88**
 352 **mold parting line**
 353 The dividing line between two halves of a shell mold, or between the segments of a segmented
 354 mold.
- 355 **3.89**
 356 **natural crepe rubber**
 357 A crude form of coagulated natural rubber having a crinkled or knobby texture.
- 358 **3.90**
 359 **natural rubber**
 360 A natural product derived from latex tapped from rubber trees.
- 361 **3.91**
 362 **negative impression**
 363 An impression that has resulted from the removal of a substance from a substrate by a footwear
 364 outsole or tire tread.
- 365 **3.92**
 366 **noise treatment**
 367 The mixed arrangement of tread block sizes used by the tire industry to reduce noise generated by
 368 tires.
- 369 **3.93**
 370 **notches**
 371 Small void areas that extend off of grooves or slots of a tire design but don't fully cross the rib or
 372 tread block.
- 373 **3.94**
 374 **not suitable for comparison**
 375 A judgment that a more detailed examination is not warranted. The examiner determined there
 376 were minimal or no confirmable or discernable features present. This determination applies when
 377 there is insufficient detail to conduct any comparison.
- 378 **3.95**
 379 **oblique lighting**
 380 Illumination from a light source that is at a low angle of incidence, or even parallel, to the surface of
 381 the item. (Also known as **side lighting**.)

- 382 **3.96**
 383 **offset**
 384 The distance from the wheel's centerline to the wheel's mounting surface. Offset is measured as
 385 positive or negative.
- 386 **3.97**
 387 **open pour molding**
 388 The manufacturing process for the outsoles in which the polyurethane (PU) is poured directly into
 389 the mold cavity. Single unit soles are made by pouring the PU into the mold and allowing the
 390 outsole to harden. Direct attached soles can be made utilizing this process. (See **direct attach**.)
- 391 **3.98**
 392 **outsole**
 393 The bottom portion of the footwear that comes into contact with the substrate.
- 394 **3.99**
 395 **outsole design**
 396 A specific pattern or arrangement of elements on an outsole typically associated with a
 397 manufacturer and having a name and/or style number.
- 398 **3.100**
 399 **partial or fragmented impression**
 400 An impression that does not represent the entire footwear outsole or tire tread.
- 401 **3.101**
 402 **patent impression**
 403 An impression visible to the naked eye.
- 404 **3.102**
 405 **pattern**
 406 See **design**.
- 407 **3.103**
 408 **pattern contusion**
 409 (See **blunt force pattern injury**)
- 410 **3.104**
 411 **physical size**
 412 The dimensions, shapes, spacing and relative positions of the footwear outsole design components
 413 and tire tread blocks (not the same as the manufacturer's footwear or tire size). Physical size is a
 414 class characteristic.
- 415 **3.105**
 416 **pitch length**
 417 The circumferential length allotted for a single tire tread element, as designated on the blue print
 418 drawing for each tire design and size.

- 419 **3.106**
420 **pitch sequence**
421 The full arrangement of pitch lengths around the full circumference of a tire, specific to a certain
422 design and size.
- 423 **3.107**
424 **plane polarized light**
425 Illumination consisting of light rays with a single vibration direction.
- 426 **3.108**
427 **ply**
428 Rubber-coated parallel cord fabric placed over the liner forming the tire carcass.
- 429 **3.109**
430 **pneumatic tire**
431 A tire filled with air under pressure.
- 432 **3.110**
433 **Polyurethane**
434 **PU**
435 A polyester or polyether-based polymer used in both the outsoles and midsoles of footwear.
- 436 **3.111**
437 **Polyvinylsiloxane**
438 Dental casting material formulated to render fine detail.
- 439 **3.112**
440 **polyvinyl chloride**
441 **PVC**
442 A thermoplastic polymer used in footwear outsoles.
- 443 **3.113**
444 **position and orientation of wear**
445 The location and direction of an area of erosion on a footwear outsole or tire tread. Examples of
446 location of wear include wear along the medial edge of the footwear outsole and wear along the
447 outer edge of a tire tread. The position and orientation of wear can change as a footwear outsole or
448 tire tread is worn.
- 449 **3.114**
450 **positive impression**
451 See **transfer impression**.
- 452 **3.115**
453 **pressed outsole**
454 An outsole made in the compression mold.
- 455 **3.116**
456 **printer's ink**
457 A highly toned oil-based black ink. Printer's inks that set up in two to four hours are often used in
458 the production of full circumference known tire impressions.

- 459 **3.117**
 460 **proficiency test**
 461 An exam that tests a person's and/or an organization's ability to meet a certain level of skill in a
 462 particular activity, field of study, etc.
- 463 **3.118**
 464 **questioned**
 465 An item of unknown source (impression or otherwise).
- 466 **3.119**
 467 **radial ply tire**
 468 A tire whose plies run from bead to bead at right angles to the centerline of the tread.
- 469 **3.120**
 470 **randomly acquired characteristic**
 471 A feature on a footwear outsole or tire tread resulting from interaction with an object(s) including,
 472 but not limited to: cuts, scratches, tears, holes, stone holds, abrasions, the acquisition of debris, and
 473 burn marks.
- 474 **3.121**
 475 **release agent**
 476 Any product that prevents substrate material from adhering to the cast.
- 477 **3.122**
 478 **residue impression**
 479 Formed by the deposition of a substance from the footwear or tire onto another surface.
- 480 **3.123**
 481 **retreaded tire**
 482 A used tire to which a new tread has been added.
- 483 **3.124**
 484 **rib**
 485 Row of continuous rubber or disconnected tire tread blocks that run circumferentially around a tire
 486 to form the tread pattern, further distinguished as center, intermediate, or shoulder ribs.
- 487 **3.125**
 488 **rim diameter**
 489 The diameter of the rim that supports the tire bead and is expressed in inches, such as 13", 16",
 490 16.5" etc.
- 491 **3.126**
 492 **Ritz Stick^{®e}**
 493 A commercial device for measuring foot length and width.

^e This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

- 494 **3.127**
 495 **roller transport film**
 496 A seven-mil Estar film base material designed to wet rollers and pick up loose particles on all types
 497 of roller transport photo-processing machines used along with fingerprint powder to produce
 498 known impressions of footwear and tires.
- 499 **3.128**
 500 **rolling circumference**
 501 The linear distance traveled by a tire in one revolution under load.
- 502 **3.129**
 503 **Schallamach pattern**
 504 Patterns that develop as ridges on rubber material as a result of repeated abrasive forces. These
 505 patterns are randomly acquired and continue to change due to continued abrasion.
- 506 **3.130**
 507 **section height**
 508 The distance from the rim to the tread surface of an unloaded tire.
- 509 **3.131**
 510 **section width**
 511 The distance between the sidewalls of an inflated tire, exclusive of any lettering or designs.
- 512 **3.132**
 513 **segmented tire mold**
 514 A mold consisting of several segments that open and close around the tire. The sidewall plates are
 515 mounted separately.
- 516 **3.133**
 517 **shell tire mold**
 518 Also known as a two-piece mold, it consists of a top and bottom, each containing a sidewall ring and
 519 half of the full-circle tread design.
- 520 **3.134**
 521 **shoe perimeter**
 522 The outer border or edge of the footwear outsole that defines its overall physical size and shape.
 523 Some perimeters may be comprised of a border such as a molded border or a foxing strip.
- 524 **3.135**
 525 **shoe size**
 526 The size a manufacturer designates for an item of footwear and places on a label in the footwear
 527 and/or footwear outsole, and shoe box. There is not a strict dimensional relationship between a
 528 manufacturer's shoe size and the length and width of the outsole.
- 529 **3.136**
 530 **shoe size grading**
 531 The gradual increase or decrease in physical size and content that a manufacturer uses for each half
 532 size. In general, each half size will result in an approximate measurement change of 4.2 mm in
 533 length of the outsole.

- 534 **3.137**
 535 **shoulder**
 536 The portion of the tire where the sidewall and tread meet.
- 537 **3.138**
 538 **side-by-side**
 539 A comparison method performed by placing objects next to one another.
- 540 **3.139**
 541 **sidewall**
 542 The portion of the tire between the shoulder and the bead that contains the tire information.
- 543 **3.140**
 544 **sipes**
 545 Thin slits in a footwear outsole or tire tread to create better traction. True sipes in footwear are
 546 those that are cut into an outsole during manufacture. True sipes in tire treads are cut in the tread
 547 only after market. True sipes must be flexed to open. Imitation sipes are molded and remain open.
- 548 **3.141**
 549 **slot**
 550 A lateral groove on a tire tread separating tread blocks.
- 551 **3.142**
 552 **snow print powder**
 553 An accelerated plaster that is applied in a prescribed way and is capable of casting all forms of snow
 554 impressions.
- 555 **3.143**
 556 **Snow Print Wax^{TMf}**
 557 **Snow impression wax**
 558 Aerosol waxes used to coat the surface of snow impressions prior to casting.
- 559 **3.144**
 560 **specific location of wear**
 561 A defined area of erosion on a footwear outsole or tire tread. Examples of a specific location of wear
 562 are a worn tire sipe or a small area of worn stippling on a footwear outsole. Specific locations of
 563 wear may allow for a greater level of discrimination or association between questioned
 564 impressions and known footwear or tires.
- 565 **3.145**
 566 **specific outsole design**
 567 The precise arrangement of design elements of part or all of a footwear outsole. The precise
 568 size/shape and arrangement of design elements in an outsole of one style and manufacturer's size
 569 are normally distinguishable from other sizes of the same manufacturer's style (see **design/size**
 570 **relationship**).

^f This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

- 571 **3.146**
 572 **sprue**
 573 The piece of material that represents the passageway where the molding material was injected into
 574 the mold to form an outsole and remains attached to the outsole at that point. The sprue is removed
 575 before sale.
- 576 **3.147**
 577 **sprue mark**
 578 A small circular mark typically left on the surface of the back of the heel of the outsole after the
 579 sprue has been removed.
- 580 **3.148**
 581 **standard**
 582 See **test impression**.
- 583 **3.149**
 584 **stippling**
 585 A pattern hand struck onto the surface of a mold using a steel die containing a selected design. The
 586 tip of the die is small and requires numerous, often overlapping, strikes. These multiple strikes
 587 result in a fine pattern on the surface of the mold, and subsequent outsoles that come from that
 588 mold. Because of the highly variable manner in which hand stippling is applied, it is specific to a
 589 given mold.
- 590 **3.150**
 591 **stone hold**
 592 A stone held in a recessed area of a footwear outsole or tire that may or may not be replicated in an
 593 impression.
- 594 **3.151**
 595 **suitable for comparison**
 596 A judgment that a source opinion can potentially be reached. The examiner determined that the
 597 item contains sufficient observed data (e.g., sufficient quality and quantity of features, size, or
 598 condition of any evidence items) to be used for a comparison.
- 599 **3.152**
 600 **sulfur**
 601 A substance used for casting snow impressions.
- 602 **3.153**
 603 **sulfur cement**
 604 A reinforced modified sulfur material, available in flake form that is a safer, stronger alternative to
 605 using pure sulfur in casting snow impressions.
- 606 **3.154**
 607 **superimposition**
 608 A visual comparison performed by placing one object over the other.
- 609 **3.155**
 610 **synthetic rubber**
 611 Any artificial elastomer that simulates the qualities of natural rubber.

- 612 **3.156**
 613 **tandem**
 614 Tires set immediately one behind the other.
- 615 **3.157**
 616 **tears**
 617 Fractures that have occurred in footwear outsoles or tire treads that reflect irregular edges (see
 618 **randomly acquired characteristics**).
- 619 **3.158**
 620 **test impression**
 621 An impression made from a footwear or tire used as an aid for comparison purposes.
- 622 **3.159**
 623 **texture**
 624 A rough surface or shallow design added to surfaces of a mold through the process of chemical
 625 etching or hand struck stippling that is transferred to the footwear during the molding process.
 626 Texture is unique to specific molds.
- 627 **3.160**
 628 **three-dimensional impression**
 629 An impression made on surfaces such as soil, sand, snow or mud with dimensions of length, width,
 630 and depth.
- 631 **3.161**
 632 **tire footprint**
 633 The contact area of a tire tread against a flat surface when under load, also known as a contact
 634 patch.
- 635 **3.162**
 636 **tire profile**
 637 See **aspect ratio**.
- 638 **3.163**
 639 **toe bumper guard**
 640 A thick strip of rubber that, in some footwear designs, is placed around the front perimeter of the
 641 footwear surrounding the toe area.
- 642 **3.164**
 643 **track width**
 644 The distance between the center points of the tires from one side of the vehicle to the other (e.g.
 645 from the center point of the right front tire to the center point of the left front tire). On a dual axle
 646 vehicle, this is the distance from the center points between the dual tires from one side of the
 647 vehicle to the other.
- 648 **3.165**
 649 **transfer impression**
 650 An impression made on a two dimensional surface by a footwear or tire as a result of coming in
 651 contact with and acquiring dust, residue, blood, mud, or other materials that the footwear or tire
 652 subsequently deposits or transfers to a substrate in the form of an impression.

- 653 **3.166**
 654 **tread**
 655 The designed part of the tire that comes into contact with the road.
- 656 **3.167**
 657 **tread block**
 658 A single geometric component of a tire tread design.
- 659 **3.168**
 660 **tread depth**
 661 A vertical measurement between the top of the tread to the bottom of the tire's deepest groove,
 662 measured in 32^{nds} of an inch.
- 663 **3.169**
 664 **tread depth gauge**
 665 A device used to measure the depth of the tire tread.
- 666 **3.170**
 667 **tread design**
 668 A specific pattern or arrangement of design elements on a tire tread typically associated with a
 669 manufacturer and having a name and/or style number. (Also used to describe footwear outsoles.)
- 670 **3.171**
 671 **TreadPrint™^g**
 672 A commercial product used to make inkless tire test impressions.
- 673 **3.172**
 674 **tread wear indicator**
 675 Bands of raised rubber, sometimes called “wear bars”, that are 2/32 of an inch above the bottom of
 676 the main grooves of a tire.
- 677 **3.173**
 678 **tread width**
 679 The width of the tire tread from one edge to the other in an impression. Not to be confused with
 680 section width.
- 681 **3.174**
 682 **turning diameter**
 683 The diameter of the smallest circle produced during a vehicle’s tightest turn, as measured from the
 684 outer edge of the outmost front tire in that turn.
- 685 **3.175**
 686 **two-dimensional impression**
 687 An impression with dimensions of length and width.

^g This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

- 688 **3.176**
 689 **unit outsole**
 690 An individual heel or outsole that must be glued and/or stitched to the upper.
- 691 **3.177**
 692 **upper**
 693 The top portion of the footwear excluding the outsole or midsole.
- 694 **3.178**
 695 **variations**
 696 Imprecise duplication and deviations among repetitions of the same process.
- 697 **3.179**
 698 **vent**
 699 Drilled hole or gap between tire mold components allowing for the release of air during mold cure.
- 700 **3.180**
 701 **vulcanization**
 702 A process in which a rubber compound is heated under pressure causing a chemical change which
 703 transforms the rubber from a soft, tacky substance to tough, hard rubber.
- 704 **3.181**
 705 **wear**
 706 Erosion of the surfaces of a footwear outsole or tire tread during use.
- 707 **3.182**
 708 **Wellman outsole cutting machine**
 709 A machine used to cut outsoles from unvulcanized calendered outsole material.
- 710 **3.183**
 711 **wet media film**
 712 A clear drafting film, preferably with a minimum thickness of 4 mils, capable of accepting ink, which
 713 is used to obtain inked impressions of tires.
- 714 **3.184**
 715 **wet origin impression**
 716 An impression formed under wet conditions including impressions consisting of residues of blood,
 717 grease, mud and other wet substances.
- 718 **3.185**
 719 **wheelbase**
 720 The distance between the front and rear axles of a vehicle. An approximation of this dimension can
 721 be obtained by measuring the distance from the leading edge of the rear tire track to the leading
 722 edge of the front tire track on the same side of the vehicle.

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Annex A (informative)

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This is not meant to be an all-inclusive list as the group recognizes other publications on this subject may exist. At the time this document was drafted, these were the publications available to the working group members for reference. Additionally, any mention of a particular software tool or vendor as part of this bibliography is purely incidental, and any inclusion does not imply endorsement by the authors of this document.

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