WHAT IS CLAIMED IS:

1. An abrasive article comprising:

an abrasive body comprising abrasive grains contained within a bond material, wherein the abrasive body comprises:

a plurality of leading edges spaced apart from each other along a null axis of the abrasive body, wherein a leading edge is defined by a series of leading points, each of the leading points having an outward normal vector having a positive vector component with regard to a directional vector defining a direction of rotation at the leading point;

a plurality of trailing edges spaced apart from each other along the null axis of the abrasive body, wherein a trailing edge is defined by a series of trailing points, each of the trailing points having an outward normal vector having a negative vector component with regard to a directional vector defining a direction of rotation at the trailing point;

a plurality of neutral edges, wherein a neutral edge is defined by a series of neutral points, each of the neutral points having an outward neutral normal vector perpendicular to the directional vector at that neutral point; and

wherein the abrasive body comprises an edge ratio of at least about 0.5, wherein the edge ratio is defined by the equation [(Lle + Lte)/(Lle + Lte + Lne)], wherein Lle is the total length of the plurality of leading edges, Lte is the total length of the plurality of trailing edges, and Lne is the total length of the plurality of neutral edges.

2. The abrasive article of claim 1, wherein each of the leading edges of the plurality of leading edges intersects the null axis.

3. An abrasive article comprising:

an abrasive segment including an abrasive body having a plurality of arm portions including abrasive grains contained within a bond material, the abrasive segment

further comprising cavities disposed between each of the arm portions of the plurality of arm portions; and

wherein each arm portion of the plurality of arm portions comprises a leading edge and a trailing edge, wherein the leading edge is defined by a series of leading points, each of the leading points having an outward normal vector having a positive vector component with regard to a directional vector defining a direction of rotation at the leading point, and wherein the trailing edge is defined by a series of trailing points, each of the trailing points having an outward normal vector having a negative vector component with regard to the directional vector at the trailing point, and further wherein each arm portion has a cutting distance measured along an arc sector defining the direction of rotation between a leading point on the leading edge and a trailing point on the trailing edge, wherein the cutting distance is not greater than about 1000Gs for a Gs between about 1 micron and about 500 microns, wherein Gs is the average grit size of the abrasive grains.

4. An abrasive article for use with a grinding wheel comprising:

an abrasive segment including an abrasive body having a plurality of arm portions, wherein the abrasive body comprises abrasive grains contained within a matrix of bond material, the abrasive segment further comprising cavities defined as open regions between the arm portions; and

wherein the abrasive segment has an abrasive body volume (V_{AB}) and wherein the plurality of cavities have a cavity volume (V_C), the abrasive segment having a cavity volume percentage defined as $[V_C/(V_{AB} + V_C)]$ of at least about 20%.

5. An abrasive article comprising:

a first abrasive segment affixed to a base, the first abrasive segment comprising:

an abrasive body including abrasive grains contained within a bond material, and

a null axis extending along the length of the abrasive body and bisecting the width of the abrasive body, wherein the abrasive body comprises a first leading edge intersecting the null axis at a first position and a second leading edge intersecting the null axis at a second position, the first and second

positions spaced apart from each other and separated by a cavity, wherein the cavity comprises a filler material.

6. The abrasive article of claim 5, wherein the cavity is partially filled with the filler material.

7. The abrasive article of claim 5, wherein the filler material comprises a material selected from the group of materials consisting of inorganic materials, organic materials, and a combination thereof.

8. The abrasive article of claim 7, wherein the filler material comprises an organic material.

9. The abrasive article of claim 8, wherein the filler material comprises an elastomer.

10. The abrasive article of claim 6, wherein the filler material comprises an upper surface that is recessed from an upper surface of the abrasive body.

11. The abrasive article of claim 5, further comprising a second abrasive segment affixed to the base and spaced apart from the first abrasive segment.

12. An abrasive article comprising:

a base having a surface;

a first abrasive segment affixed to the surface of the base, the abrasive segment comprising abrasive grains contained within a bond material, the abrasive segment having a plurality of arm portions defining a twisted path having a plurality of linear portions joined by a plurality of turns; and

a second abrasive segment affixed to the surface of the base, wherein the second abrasive segment is spaced apart from the first abrasive segment.

13. The abrasive article of claim 12, wherein the first abrasive segment and second abrasive segment are circumferentially spaced apart from each other on the surface of the base.

14. The abrasive article of any one of claim 12, wherein the base comprises an inorganic material.

15. The abrasive article of claim 14, wherein the base comprises a material selected from the group of materials consisting of metal, metal alloys, and a combination thereof.

WHAT IS CLAIMED IS:

1. An abrasive article comprising:

an abrasive body comprising abrasive grains contained within a bond material, wherein the abrasive body comprises:

a plurality of leading edges spaced apart from each other along a null axis of the abrasive body, wherein a leading edge is defined by a series of leading points, each of the leading points having an outward normal vector having a positive vector component with regard to a directional vector defining a direction of rotation at the leading point;

a plurality of trailing edges spaced apart from each other along the null axis of the abrasive body, wherein a trailing edge is defined by a series of trailing points, each of the trailing points having an outward normal vector having a negative vector component with regard to a directional vector defining a direction of rotation at the trailing point;

a plurality of neutral edges, wherein a neutral edge is defined by a series of neutral points, each of the neutral points having an outward neutral normal vector perpendicular to the directional vector at that neutral point; and

wherein the abrasive body comprises an edge ratio of between about 0.7 an about 0.98, wherein the edge ratio is defined by the equation [(Lle + Lte)/(Lle + Lte + Lne)], wherein Lle is the total length of the plurality of leading edges, Lte is the total length of the plurality of trailing edges, and Lne is the total length of the plurality of neutral edges.

2. The abrasive article of claim 1, wherein each of the leading edges of the plurality of leading edges intersects the null axis.

3. An abrasive article comprising:

an abrasive segment including an abrasive body having a plurality of arm portions including abrasive grains contained within a bond material, the abrasive segment

further comprising cavities disposed between each of the arm portions of the plurality of arm portions; and

wherein each arm portion of the plurality of arm portions comprises a leading edge, a neutral edge and a trailing edge, wherein the leading edge is defined by a series of leading points, each of the leading points having an outward normal vector having a positive vector component with regard to a directional vector defining a direction of rotation at the leading point, wherein the neutral edge is defined by a series of neutral points, each of the neutral points having an outward neutral normal vector perpendicular to the directional vector at that neutral point and wherein the trailing edge is defined by a series of trailing points, each of the trailing points having an outward normal vector having a negative vector component with regard to the directional vector at the trailing point, wherein the abrasive body comprises an edge ratio of between about 0.7 an about 0.98, wherein the edge ratio is defined by the equation [(Lle + Lte)/(Lle + Lte + Lne)], wherein Lle is the total length of the plurality of leading edges, Lte is the total length of the plurality of trailing edges, and Lne is the total length of the plurality of neutral edges, and further wherein each arm portion has a cutting distance measured along an arc sector defining the direction of rotation between a leading point on the leading edge and a trailing point on the trailing edge, wherein the cutting distance is not greater than about 1000Gs for a Gs between about 1 micron and about 500 microns, wherein Gs is the average grit size of the abrasive grains.

4. The abrasive article of claim 3, wherein the cutting distance is within a range between about 50Gs and about 1000Gs for a Gs between about 1 micron and about 5 microns.

5. The abrasive article of claim 1, further comprising a plurality of cavities spaced along the null axis, each cavity of the plurality of cavities being spaced between one of the plurality of leading edges and one of the plurality of trailing edges.

6. The abrasive article of claim 5, further comprising a filler material filling the plurality of cavities.

7. The abrasive article of claim 6, wherein the filler material comprises an upper surface recessed from an upper surface of the abrasive body.

8. The abrasive article of claim 7, wherein the upper surface of the filler material is recessed from the upper surface of the abrasive body by a distance of not greater than about 95% of a height of the abrasive body.

9. The abrasive article of claim 7, wherein the upper surface of the filler material is recessed from the upper surface of the abrasive body by a distance of not greater than about 50% of a height of the abrasive body.

10. The abrasive article of claim 7, wherein the upper surface of the filler material is recessed from the upper surface of the abrasive body by a distance of not greater than about 20% of a height of the abrasive body.

11. The abrasive article of claim 6, wherein the filler material fills a majority of a volume of each cavity of the plurality of cavities.

12. The abrasive article of claim 6, wherein the filler material comprises a material selected from the group of materials consisting of inorganic materials, organic materials, and a combination thereof.

13. The abrasive article of claim 6, wherein the filler material comprises an organic material.

14. The abrasive article of claim 6, wherein the filler material comprises an elastomer.