CLAIMS

What is claimed is:

1. A method for making a polishing pad, comprising:

rotating a cylinder about a central axis,

dispensing a polymer precursor into an interior space enclosed within the cylinder, wherein centrifugal force creates a uniform layer of the polymer precursor against the surface of an interior surface of the cylinder;

forming a solid nonporous homogenous polymer sheet by curing the polymer precursor;

removing the polymer sheet from the cylinder; and

shaping the polymer sheet into polymer pads.

2. The method of claim 1, wherein the rotating of the cylinder is continued until the polymer has cured.

3. The method of claim 1, further comprising forming at least two distinct layers in the polishing pad by casting and curing sequentially at least two polymer layers.

4. The method of claim 3, wherein the at least two distinct layers comprise the polymer precursor and at least one further polymer precursor.

5. The method of claim 1, further comprising heating the cylinder to a temperature between 50 and 500 degrees Fahrenheit during at least a portion of a time of the rotating operation.

6. The method of claim 5, wherein the temperature is between about 140 and 212 degrees Fahrenheit.

7. The method of claim 1, wherein the polymer precursor comprises at least one of a polyurethane, a polyuria-urethane, a polycarbonate, a polyamide, a polyacrylate and a polyester.

8. The method of claim 1, further comprising:

mixing at least one of a diisocyanate, a di-functional isocyanate and a polyfunctional isocyanate with a first polyol to form the polymer precursor.

9. The method of claim 8, further comprising adding at least one of filler, microelements, abrasives, fibers, surfactants and a plasticizer into the polymer precursor.

10. The method of claim 8, further comprising treating a surface of the interior space of the cylinder with a mold release agent prior to dispensing the polymer precursor into the interior space.

11. The method of claim 1, further comprising removing at least some of the polymer from the interior space of the cylinder after the polymer has cured.

12. A system for manufacturing a polishing pad, comprising:

a centrifugal caster adapted to rotate, the centrifugal caster defining a cylindrical interior space; and

a dispenser adapted to introduce a polymer precursor into the centrifugal caster, wherein centrifugal force creates a uniform layer of the polymer precursor against the surface of an interior surface of the cylinder;

wherein the polishing pad is formed from at least some of a solid nonporous homogenous polymer sheet formed after the polymer precursor has cured.

13. The system of claim 12, further comprising a mixer adapted to mix at least a first diisocyanate and a first polyol to form the polymer precursor.

14. The system of claim 12, wherein the centrifugal caster is adapted to heat the polymer precursor.

15. The system of claim 12, wherein a surface of the cylindrical interior space includes a texture adapted to impart to the polymer at least one of:

a groove texture to a working surface of the polishing pad;

a perforation delineating an outer edge of the polishing pad; and

a roughened texture to a backside of the polishing pad opposite the working surface to improve adhesion between the polishing pad and an adhesive.

16. A polishing pad made by a method, the method comprising:

rotating a cylinder about a central axis, the cylinder enclosing in an interior space a polymer precursor;

forming the polishing pad from at least some of a polymer formed after the polymer precursor has cured; and

placing a fiber network on the polymer precursor prior to being fully cured; and subsequently forming an additional layer on top of the network.

17. The polishing pad of claim 16, wherein the method further comprises forming grooves in a surface of the polishing pad.

18. The polishing pad of claim 16, wherein the method further comprises:

mixing at least two components to form the polymer precursor; and introducing the polymer precursor into an interior of the cylinder.

19. The polishing pad of claim 16, wherein the polishing pad is at least one of:

substantially flat;

substantially homogenous; and

between 20 Shore A to 90 Shore D in hardness.

20. The polishing pad of claim 16, wherein the polishing pad is at least one of: absent of pores in a majority of a cross-sectional cut; and

greater than 20 mils thick.

21. The polishing pad of claim 16, wherein the polishing pad is transparent.

22. The polishing pad of claim 16, wherein the polishing pad is opaque.

23. The polishing pad of claim 16, wherein the polishing pad is anisotropic.