CLAIMS:

1. A soft polishing pad for polishing a semiconductor substrate, the soft polishing pad comprising:

a molded homogeneous polishing body comprising a thermoset, closed cell polyurethane material having a hardness approximately in the range of 20 Shore D to 45 Shore D, wherein the soft polishing pad is hydrophobic.

2. The soft polishing pad of claim 1, wherein the molded homogeneous polishing body comprises a first, grooved surface, and a second, flat surface opposite the first surface.

3. The soft polishing pad of claim 1, wherein the molded homogeneous polishing body is opaque.

4. The soft polishing pad of claim 3, wherein the molded homogeneous polishing body further comprises an opacifying lubricant.

5. The soft polishing pad of claim 1, further comprising:

a local area transparency (LAT) region disposed in, and covalently bonded with, the molded homogeneous polishing body.

6. The soft polishing pad of claim 5, wherein the LAT region and the molded homogeneous polishing body are substantially cross-linked.

7. The soft polishing pad of claim 5, wherein the molded homogeneous polishing body is opaque, and wherein the LAT region is essentially free from the opacifying lubricant.

8. The soft polishing pad of claim 5, wherein the molded homogeneous polishing body had a Shore D less than the Shore D of the LAT region.

9. The soft polishing pad of claim 5, wherein the molded homogeneous polishing body is circular with a diameter approximately in the range of 75 – 78 centimeters, and the LAT region has a length approximately in the range of 4 – 6 centimeters, a width approximately in the range of 1 – 2 centimeters, and is positioned approximately in the range of 16-20 centimeters from the center of the molded homogeneous polishing body.

10. The soft polishing pad of claim 1, further comprising:

a carrier film disposed above the molded homogeneous polishing body, wherein the carrier film comprises polyethylene teraphthalate (PET).

11. The soft polishing pad of claim 10, further comprising:

a first pressure-sensitive adhesive layer disposed between the carrier film and the molded homogeneous polishing body, wherein the first pressure-sensitive adhesive layer comprises a rubber-type material.

12. The soft polishing pad of claim 11, further comprising:

a second pressure-sensitive adhesive layer disposed above the carrier film, wherein the second pressure-sensitive adhesive layer comprises an acrylic-type material.

13. The soft polishing pad of claim 12, further comprising:

a release liner disposed above the second pressure-sensitive adhesive layer, the release liner comprising polyethylene teraphthalate (PET).

14. The soft polishing pad of claim 1, further comprising:

a release liner disposed directly on the molded homogeneous polishing body.

15. A method of fabricating a soft polishing pad for polishing a semiconductor substrate, the method comprising:

mixing, in a formation mold, a pre-polymer, a primary curative, and a secondary curative different from the primary curative to form a mixture; and

curing the mixture to provide a molded homogeneous polishing body comprising a thermoset, closed cell polyurethane material having a hardness approximately in the range of 20 Shore D to 45 Shore D.

16. The method of claim 15, wherein the pre-polymer comprises a polyurethane precursor, the primary curative comprises an aromatic diamine compound, and the secondary curative comprises an ether linkage.

17. The method of claim 16, wherein the polyurethane precursor is an isocyanate, the primary curative is an aromatic diamine, and the secondary curative is selected from the group consisting of polytetramethylene glycol, amino-functionalized glycol, and amino-functionalized polyoxopropylene.

18. The method of claim 15, wherein curing the mixture comprises partially curing, in the formation mold, to provide a polyurethane material, and further curing, in an oven, to provide the molded homogeneous polishing body comprising the thermoset, closed cell polyurethane material.

19. The method of claim 15, wherein the molded homogeneous polishing body comprises a first, grooved surface, and a second, flat surface opposite the first surface.

20. The method of claim 15, wherein the mixing further comprises mixing an opacifying lubricant with the pre-polymer, the primary curative, and the secondary curative, and wherein the molded homogeneous polishing body is opaque.

21. The method of claim 15, further comprising:

prior to mixing the pre-polymer and the primary curative and the secondary curative, mixing an aromatic urethane pre-polymer with a curative in a second, separate, formation mold to form a second mixture;

partially curing, in the second formation mold, the second mixture to form a molded gel; and

positioning the molded gel in a designated region of the formation mold, wherein mixing the pre-polymer and the primary curative and the secondary curative to form the mixture comprises forming the mixture at least partially surrounding the molded gel, and wherein curing the mixture to provide the molded homogeneous polishing body further comprises curing the molded gel to provide a local area transparency (LAT) region disposed in, and covalently bonded with, the molded homogeneous polishing body.

22. The method of claim 21, wherein curing the mixture comprises partially curing, in the formation mold, to provide a polyurethane material and to provide an LAT region precursor, and further curing, in an oven, to provide the molded homogeneous polishing body comprising the thermoset, closed cell polyurethane material and to provide the LAT region.

23. The method of claim 21, wherein the aromatic urethane pre-polymer comprises polytetramethylene glycol-toluene diisocyanate, and the curative comprises thioether aromatic diamine.

24. The method of claim 21, wherein the partial curing of the second mixture is performed solely with thermal energy.