**CLAIMS**

1. A method for curing photopolymer films comprising the steps of:

depositing a photopolymer film on a selected substrate; and,

curing the photopolymer film by microwave heating for a selected time at a selected temperature from about 200 to about 340 °C in a selected atmosphere containing an oxygen concentration in the range from about 20 to 200,000 ppm, wherein the oxygen concentration is maintained by at least one of supplying a known amount of oxygen gas ($O_2$) to the atmosphere or adjusting the pressure of the atmosphere.

2. The method of claim 1, wherein the photopolymer is a photosensitive polyimide (PSPI).

3. The method of claim 2 wherein the PSPI comprises a polyamic acid (PAA) precursor resin modified with a photosensitive methacrylate alcohol to form a photosensitive polyamic ester (PAE).

4. The method of claim 3 wherein the methacrylate alcohol comprises one or more compositions in the methacrylate family (R--$CH_2CH_2OC(O)CH=C(CH_3)_2$) of monomers and oligomers, where R indicates any selected organic moiety attached at the indicated position.

5. The method of claim 2 wherein the selected time is from about 60 to about 180 minutes.

6. The method of claim 2 wherein the selected temperature ranges from about 200 to about 275° C.

7. The method of claim 2 wherein the selected atmosphere contains an oxygen concentration in the range from about 200 to 200,000 ppm.

8. The method of claim 1, wherein the photopolymer is a polybenzoxazole (PBO).

9. A method for curing photopolymer films comprising the steps of:
depositing a photopolymer film on a selected substrate;
photopatterning the photopolymer film;
developing the photopatterned photopolymer film; and,
curing the developed photopolymer film by microwave heating for a selected time at a selected temperature from about 200 to 340° C. in a selected atmosphere containing an oxygen concentration from about 20 to 200,000 ppm, wherein the oxygen concentration is maintained by at least one of supplying a known amount of oxygen gas to the atmosphere or adjusting the pressure of the atmosphere.

10. The method of claim 9, wherein the photopolymer is a photosensitive polyimide (PSPI).

11. The method of claim 10 wherein the PSPI comprises a polyamic acid (PAA) precursor resin modified with a photosensitive methacrylate alcohol to form a photosensitive polyamic ester (PAE).

12. The method of claim 11 wherein the methacrylate alcohol comprises one or more compositions in the methacrylate family (R-- $CH_2CH_2OC(O)CH=C(CH_3)_2$) of monomers and oligomers, where R indicates any selected organic moiety attached at the indicated position.

13. The method of claim 10 wherein the selected time is from about 60 to about 180 minutes.

14. The method of claim 10 wherein the selected temperature ranges from about 200 to about 275° C.

15. The method of claim 10 wherein the selected atmosphere contains an oxygen concentration in the range from about 200 to 200,000 ppm.

16. The method of claim 9, wherein the photopolymer is a polybenzoxazole (PBO).