CLAIMS

1. A method comprising forming a polymeric composition by adding zinc oxide to a polymer wherein a pipe formed from the polymeric composition displays a time to failure as determined in accordance with ASTM F2263-07(E1) that is increased by greater than about 25% when compared to an otherwise similar pipe formed from an otherwise similar polymeric composition lacking the zinc oxide.

2. The method of claim 1 wherein the zinc oxide is present in the polymeric composition in an amount of from about 500 ppm to about 10,000 ppm.

3. The method of claim 1 or 2 wherein the zinc oxide is present in the polymeric composition in an amount of from about 1000 ppm to about 9,000 ppm.

4. The method of claim 1, 2, or 3 wherein the zinc oxide is added within a reactor, during extrusion of a reactor fluff, during formation of the pipe, or combinations thereof.

5. The method of claim 1, 2, 3, or 4 wherein the polymeric composition has a polydispersity index of from about 5 to about 40.

6. The method of claim 1, 2, 3, 4, or 5 wherein the polymer comprises polyethylene.

7. The method of claim 1, 2, 3, 4, 5, or 6 wherein the polymer has a density of from about 0.93 g/cc to about 0.97 g/cc.

8. The method of claim 6 or 7 wherein the polyethylene is a copolymer of ethylene and 1-hexene.

9. The method of claim 1, 2, 3, 4, 5, 6, 7, or 8 wherein the polymer is unimodal.

10. The method of claim 1, 2, 3, 4, 5, 6, 7, or 8 wherein the polymer is bimodal.

11. A pipe comprising polyethylene and greater than about 0.5 wt.% zinc oxide having a time to failure as determined in accordance with ASTM F2263-07(E1) that is at least about 25% greater than an otherwise similar pipe prepared in the absence of zinc oxide.

12. The pipe of claim 11 wherein the pipe comprises greater than about 0.75 wt.% zinc oxide.

13. The pipe of claim 11 or 12 further comprising carbon black.

14. The pipe of claim 11, 12, or 13 wherein the polyethylene has a density of from about 0.93 g/cc to about 0.97 g/cc.

15. The pipe of claim 11, 12, 13, or 14 wherein the polyethylene is metallocene catalyzed.

16. The pipe of claim 11, 12, 13, 14, or 15 wherein the polyethylene is a copolymer of ethylene and 1-hexene.

17. A method comprising:

forming a polymeric composition comprising a polymer and zinc oxide into an article wherein the zinc oxide is present in an amount of from about 500 ppm to about 10000 ppm; and

testing the structural integrity of the article when exposed to chlorinated water.

18. The method of claim 17 wherein the zinc oxide is present in the polymeric composition in an amount of from about 1000 ppm to about 9000 ppm.

19. The method of claim 17 or 18 wherein the zinc oxide is present in the polymeric composition in an amount of greater than about 0.50 wt.% based on the total weight of the polymer composition.

20. The method of claim 17, 18, or 19 wherein the polymer comprises polyethylene.

21. The method of claim 17, 18, 19, or 20 wherein the polymer has a density of from about 0.94 g/cc to about 0.97 g/cc.

22. The method of claim 17, 18, 19, 20, or 21 wherein the article is a pipe.

23. A packaged product comprising the pipe of claim 22 and written instructions regarding contacting the pipe with chlorinated water.

24. A method comprising:

providing a polymeric composition comprising polyethylene, carbon black, and zinc oxide wherein the zinc oxide is present in an amount of greater than about 0.5 wt.% of the total weight of the polymeric composition; forming the polymeric composition into an article; and

comparing the structural integrity of the article when exposed to chlorinated water to the structural integrity of a second article when exposed to chlorinated water, wherein the second article is an otherwise similar article formed from a polymeric composition lacking the zinc oxide.

25. The method of claim 24 wherein the articles are pipes.

26. The method of claim 23 or 24 further comprising providing a packaged product comprising the pipe and written instructions, wherein the written instructions include information on utilization of the pipe in applications involving contact with chlorinated water.

CLAIMS

1. A pipe formed from a chlorinated water-stabilized polymer composition comprising polyethylene and greater than about 0.5 wt. % zinc oxide having a time to failure as determined in accordance with ASTM F2263-07(E1) that is at least about 25% greater than an otherwise similar pipe prepared in the absence of zinc oxide, wherein the composition has a polydispersity ranging from greater than 10 to about 40.

2. The pipe of claim 1 wherein the composition comprises greater than about 0.75% zinc oxide.

3. The pipe of claim 1 wherein the composition further comprises carbon black.

4. The pipe of claim 2 wherein the polyethylene has a density of from about 0.93 g/cc to about 0.97 g/cc.

5. The pipe of claim 1 wherein the polyethylene is metallocene catalyzed.

6. The pipe of claim 1 wherein the polyethylene is a copolymer of ethylene and 1-hexene.

7. A packaged product comprising the pipe of claim 1 and written instructions regarding contacting the pipe with chlorinated water.