Claims

1. A multifocal ophthalmic lens, wherein:

a first surface of the lens is shaped to form a first surface power map;

a second surface of the lens is shaped to form a second surface power map;

the first and second surface power maps together form a lens power map;

the first surface power map, the second surface power map, or the lens power map comprises a spiral, the spiral having a variation across at least a portion of the lens, the spiral having a first periodic component, in a radial direction extending outwards from the centre of the portion, and a second periodic component, in an azimuthal direction about the centre of the portion, the period of the second periodic component being substantially constant across the portion.

2. A multifocal ophthalmic lens according to claim 1, wherein:

the first periodic component has a period of greater than 100 microns; and

the second periodic component has a period of greater than 6 degrees.

3. A multifocal ophthalmic lens according to any preceding claim, wherein the variation of the spiral comprises an offset in power, the offset changing according to a radial distance from the centre of the portion.

4. A multifocal ophthalmic lens according to any preceding claim, wherein a peak power of one or more arms of the spiral varies according to one or both of: a radial distance from the centre of the portion and an azimuthal position about the centre of the portion.

5. A multifocal ophthalmic lens according to any preceding claim, wherein:

a peak power of each arm of the spiral does not vary with radial distance from the centre of the portion; and

the peak power of at least one arm of the spiral differs from that of the other arms.

6. A multifocal ophthalmic lens according to any preceding claim, wherein each of the first surface power map and the second surface power map vary smoothly across the portion.

7. A multifocal ophthalmic lens according to any preceding claim, wherein:

the portion of the lens comprises a central region and an outer region, the outer region surrounding the central region;

the lens power map within the outer region comprises the spiral; and

the lens power map does not vary periodically within the central region.

8. A multifocal ophthalmic lens according to claim 7, wherein the central region has a diameter of less than 50% of that of the portion.

9. A multifocal ophthalmic lens according to claim 7 or 8, wherein:

the lens comprises a transition region, the transition region surrounding the central region and the outer region surrounding the transition region; and

the lens power map varies such that the transition region provides a smooth transition between the central zone and the outer zone.

10. A multifocal ophthalmic lens according to any preceding claim, wherein a twist rate of the spiral varies according to a radial distance from the centre of the portion.

11. A multifocal ophthalmic lens according to any preceding claim, wherein a width of one or more arms of the spiral differs from a corresponding width of the other arms of the spiral.

12. A multifocal ophthalmic lens according to claim 11, wherein, at a pre-determined radial distance from the centre of the portion, the spiral changes its direction of rotation.

13. A method of manufacturing a multifocal ophthalmic lens, the method comprising:

operating a lathe to shape a first surface of one of: a lens, a mould for a lens, or an insert for manufacturing a mould for a lens to form a first surface power map;

operating a lathe to shape a second surface of the lens, mould, or insert to form a second surface power map;

wherein:

the combination of the first and second surface power maps forms a lens power map;

the first surface power map, the second surface power map, or the lens power map comprises a spiral, the spiral having a variation across at least a portion of the lens, mould or insert, the spiral having a first periodic component, in a radial direction extending outwards from the centre of the portion, and a second periodic component, in an azimuthal direction about the centre of the portion, the period of the second periodic component being substantially constant across the portion.

14. A method of improving vision of a person, the method comprising:

providing a multifocal ophthalmic lens according to any of claims 1 to 12 to a person in need of improved vision.