

**We Claim:**

- 5 1. An ophthalmic emulsion, the emulsion comprising:
- water forming an aqueous phase;
- oil forming an oil phase;
- a hydrophilic surfactant having an HLB value from 10 to 18;
- 10 a hydrophobic surfactant having an HLB value from 1 to 6;
- a charged phospholipid;
- borate;
- a mucoadhesive galactomannan polymer; and
- a preservative;
- 15 wherein the mucoadhesive galactomannan polymer is present in the emulsion at a concentration of at least about 0.1 w/v % but no greater than 0.5 w/v %;
- wherein the preservative is substantially free of a benzalkonium chloride;
- and
- 20 wherein the ophthalmic emulsion has a hydration protection against desiccation of at least 10% higher than a control emulsion, wherein the control emulsion has the same composition of the ophthalmic emulsion except of containing 0.05 w/v % of the same galactomannan polymer used in the ophthalmic emulsion.
- 25 2. The emulsion as in claim 1 wherein the oil is a hydrocarbon selected from mineral oil, paraffin oil and petrolatum.

3. The emulsion as in claim 1 wherein the oil is at least 0.1 w/v% and no greater than 3 w/v% of the emulsion.
4. The emulsion as in claim 3 wherein the hydrophilic surfactant is present in the emulsion in an amount that is at least 0.08 w/v% and is no greater than about 0.8 w/v%.
5. The emulsion as in claim 4 wherein the hydrophilic surfactant is polyoxyethylene-40-stearate.
6. The emulsion as in claim 4 wherein the hydrophobic surfactant is at least about 0.01 w/v% and is no greater than 2.0 w/v%.
7. The emulsion as in claim 6 wherein the hydrophobic surfactant is a sorbitan tristearate.
8. The emulsion as in claim 1 wherein the mucoadhesive galactomannan polymer is selected from the group consisting of guar and hydroxypropyl guar.
9. The emulsion as in claim 8 wherein the mucoadhesive galactomannan polymer is present in the emulsion at a concentration of at least about 0.12 w/v % but no greater than 0.4 w/v %.
10. The emulsion as in claim 8 wherein the charged phospholipid is an anionic phospholipid named dimyristoyl phosphatidylglycerol.
11. The emulsion as claim 10 wherein the phospholipid is present in the emulsion in a concentration from about 0.13 to 0.3 percent by weight.
12. The emulsion as in claim 1 further comprising a borate/polyol buffer system.
13. The emulsion as in claim 12 wherein the preservative is a polymeric quaternary ammonium compound.
14. The emulsion as in claim 1, wherein:

- i. the oil phase is in droplets within the aqueous phase and the droplets have a  $D_{90}$  diameter that is no greater than about 700 nm but is at least 10 nm; and
  - ii. the borate and galactomannan polymer cooperatively act to form a gel upon instillation of the emulsion in an eye of an individual.
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15. The emulsion as in claim 14, wherein the oil phase is in droplets within the aqueous phase and the droplets have a  $D_{90}$  diameter that is no greater than about 500 nm but is at least 30 nm.

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16. The emulsion as in claim 15, wherein the oil phase is in droplets within the aqueous phase and the droplets have a  $D_{90}$  diameter that is no greater than about 300 nm but is at least 50 nm.