

CLAIMS

1. An anesthetic emulsion comprising:
a dispersed phase comprising a eutectic mixture of lidocaine and benzocaine; and
an aqueous or aqueous-based continuous phase comprising bupivacaine.
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2. The anesthetic emulsion of claim 1, wherein a ratio of lidocaine to benzocaine ranges
from 1.5 to 3.
3. The anesthetic emulsion of claim 1, wherein the aqueous phase further comprises one or
10 more gelling agents.
4. The anesthetic emulsion of claim 1, wherein the eutectic mixture further comprises
menthol.
- 15 5. The anesthetic emulsion of claim 1, wherein the lidocaine is present in an amount of 10-
20 weight percent of the anesthetic emulsion.
6. The anesthetic emulsion of claim 1, wherein the benzocaine is present in an amount of 3-
8 weight percent of the anesthetic emulsion.
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7. The anesthetic emulsion of claim 4, wherein the menthol is present in an amount of 0.5-2
weight percent of the anesthetic emulsion.
8. The anesthetic emulsion of claim 3, wherein the one or more gelling agents are present in
25 a total amount of 15-25 weight percent of the anesthetic emulsion.
9. The anesthetic emulsion of claim 1 having a viscosity of 3-5 Pa-s at 30°C and a shear rate
of 500/s.
- 30 10. The anesthetic emulsion of claim 3, wherein the one or more gelling agents comprises a
block copolymer comprising hydrophobic and hydrophilic blocks.

11. The anesthetic emulsion of claim 1, wherein the bupivacaine is present in an amount up to 5 weight percent of the anesthetic emulsion.
12. A method of treating a site of damaged tissue comprising:
5 applying an anesthetic emulsion to the site of damaged tissue, the anesthetic emulsion comprising a dispersed phase comprising a eutectic mixture of lidocaine and benzocaine, and an aqueous or aqueous-based continuous phase comprising bupivacaine.
13. The method of claim 12 further comprising releasing at least one of the lidocaine,
10 benzocaine, and bupivacaine to the site of damaged tissue over a period of at least three days.
14. The method of claim 12, wherein the site of damaged tissue is a surgical site.
15. The method of claim 14, wherein the surgical site resides in a patient's mouth.
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16. The method of claim 15, wherein the surgical site is a tooth socket.
17. The method of claim 12, wherein the site of damaged tissue is a site of injury.
- 20 18. The method of claim 17, wherein the site of injury comprises one or more lacerations.
19. The method of claim 12, wherein a ratio of lidocaine to benzocaine ranges from 1.5 to 3.
20. The method of claim 12, wherein the eutectic mixture further comprises menthol.
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21. The method of claim 12, wherein the aqueous phase further comprises one or more gelling agents.
22. The method of claim 12, wherein the anesthetic emulsion has a viscosity of 3-5 Pa-s at
30 30°C and a shear rate of 500/s.