[Claims]

[Claim 1]

A solid dispersion of rifaximin comprising rifaximin and at least one polymer selected from among hydroxypropyl methylcellulose phthalate (HPMC-P), hydroxypropyl methylcellulose acetate succinate (HPMC-AS), and polymethacrylate (Eudragit (registered trademark) L100-55), wherein the weight ratio of rifaximin to polymer is in a range from 10:90 to 90:10.

[Claim 2]

A solid dispersion of rifaximin according to claim 1, wherein HPMC-AS comprises one or more of grades HG and MG.

[Claim 3]

A solid dispersion of rifaximin according to claim 1, wherein HPMC-P comprises grade 55.

[Claim 4]

A solid dispersion of rifaximin according to claim 3, further comprising a poloxamer.

[Claim 5]

A solid dispersion of rifaximin according to claim 4, wherein the poloxamer comprises poloxamer 407 or Pluronic F-127.

[Claim 6]

A solid dispersion of rifaximin according to claim 1, further comprising polyvinylpyrrolidone (PVP) grade K-90.

[Claim 7]

A solid dispersion of rifaximin according to claim 1, wherein the weight ratio of rifaximin to polymer is in a range from 15:85 to 85:15.

[Claim 8]

A solid dispersion of rifaximin according to claim 7, wherein the weight ratio of rifaximin to polymer is in a range from 25:75 to 75:25.

[Claim 9]

A solid dispersion of rifaximin according to claim 8, wherein the weight ratio of rifaximin to polymer is in a range from 40:60 to 60:40.

[Claim 10]

A solid dispersion of rifaximin according to claim 1, wherein the weight ratio of rifaximin to polymer is 50:50.

[Claim 11]

A solid dispersion of rifaximin according to claim 1, wherein the solid dispersion has the appearance of a single glass transition temperature (Tg).

[Claim 12]

A solid dispersion of rifaximin according to claim 1, wherein a Tg of the solid dispersion increases with an increased rifaximin concentration

[Claim 13]

A solid dispersion of rifaximin according to claim 1, wherein the solids are still X-ray amorphous according to XRPD when the solid dispersion has been stressed at 70°C/75% RH for 1 week.

[Claim 14]

A solid dispersion of rifaximin according to claim 1, wherein the solids are still X-ray amorphous according to XRPD when the solid dispersion has been stressed at 70°C/75% RH for 3 weeks.

[Claim 15]

A solid dispersion of rifaximin according to claim 1, wherein the solids are still X-ray amorphous according to XRPD when the solid dispersion has been stressed at 70°C/75% RH for 6 weeks.

[Claim 16]

A solid dispersion of rifaximin according to claim 1, wherein the solids are still X-ray amorphous according to XRPD when the solid dispersion has been stressed at 70°C/75% RH for 12 weeks.

[Claim 17]

A microgranule comprising a solid dispersion of rifaximin as described in any one of claims 1 to 16.

[Claim 18]

A microgranule according to claim 17, further comprising and intragranular release controlling agent.

[Claim 19]

A microgranule according to claim 18, wherein the intragranular release controlling agent comprises a pharmaceutically acceptable excipient and/or disintegrant.

[Claim 20]

A microgranule according to claim 19, wherein the disintegrant is selected from a group consisting of crosprovidone, sodium starch glycolate, corn starch, microcrystalline cellulose, cellulosic derivatives, sodium bicarbonate, and sodium alginate.

[Claim 21]

A microgranule according to claim 17, further comprising a surfactant.

[Claim 22]

A microgranule according to claim 17, further comprising an antioxidant.

[Claim 23]

A pharmaceutical composition comprising the microgranule of any one of claims 17 to 22.

[Claim 24]

A pharmaceutical composition according to claim 23, further comprising one or more pharmaceutically acceptable excipient.

[Claim 25]

A pharmaceutical composition according to claim 23, wherein the composition comprises a tablet or capsule.

[Claim 26]

A pharmaceutical composition according to claim 25, wherein the pharmaceutical composition comprises a disintegrant.

[Claim 27]

A pharmaceutical composition comprising a solid dispersion of rifaximin according to claim 1 and at least one pharmaceutically acceptable excipient.

[Claim 28]

A pharmaceutical composition according to claim 27 comprising a solid dispersion of rifaximin, a polymer, a surfactant, and an intragranular release controlling agent.

[Claim 29]

A pharmaceutical composition according to claim 28 comprising a solid dispersion of rifaximin, HPMC-AS, a poloxamer, and croscarmellose Na (CS).

[Claim 30]

A pharmaceutical composition according to claim 28, wherein the pharmaceutical composition is a tablet or pill.

[Claim 31]

A pharmaceutical composition according to claim 28 further comprising a filler, glidant or lubricant.

[Claim 32]

A pharmaceutical composition according to any one of claims 29 to 31, wherein the composition comprises the ratio of components set forth in the table below.

[Table 1]

Component	Composition 1 %w/w	Composition 2 %w/w	Composition 3 %w/w	Composition 4 %w/w
Rifaximin	35.29	35.32	35.29	35.29
HPMS-AS	35.29	35.32	35.29	35.29
Pluronic F-127	4.19	4.19	4.19	4.19
Croscarmellose Na (Internal/Granules)	0.00	1.92	3.94	8.31
Avicel PH102	19.53	17.55	15.59	11.22
Croscarmellose Na (Added/Granules)	5.00	5.00	5.00	5.00
Cab-O-Sil	0.20	0.20	0.20	0.20
Magnesium Stearate	0.50	0.50	0.50	0.50

[Claim 33]

A process for producing a solid dispersion of rifaximin comprising: preparing a slurry of methanol, rifaximin, HPMC-AS MG and poloxamer 407; and spray drying the slurry.

[Claim 34]

A process for producing a solid dispersion of rifaximin comprising: spray drying rifaximin and Eudragit L100-55 at a weight ratio of 25:75, 50:50, or 75:25.

[Claim 35]

A process for producing a solid dispersion of rifaximin comprising: spray drying rifaximin and HPMC-AS MG at a weight ratio of 50:50 or spray drying rifaximin and HPMC-P at a weight ratio of 25:75.

[Claim 36]

A pharmaceutical composition according to claim 27 for use in the prevention or treatment of a bacterial infection.

[Claim 37]

Use of a pharmaceutical composition according to claim 27 in the manufacture of a medicament for the prevention or treatment of a bacterial infection.

[Claim 38]

A pharmaceutical composition according to claim 27 for use in the prevention or treatment of a bowel-related disorder.

[Claim 39]

Use of a pharmaceutical composition according to claim 27 in the manufacture of a medicament for the prevention or treatment of a bowel-related disorder.

[Claim 40]

The use according to claim 39, wherein the bowel-related disorder includes irritable bowel syndrome, diarrhea, microbe-associated diarrhea, Clostridium difficile-associated diarrhea, travelers' diarrhea, small intestinal bacterial overgrowth, Crohn's disease, diverticular disease, chronic pancreatitis, pancreatic insufficiency, enteritis, colitis, hepatic encephalopathy, minimal hepatic encephalopathy, or pouchitis.

[Claim 41]

The use according to claim 39, wherein the bowel-related disease is hepatic encephalopathy.

[Claim 42]

The use according to claim 39, wherein the bowel-related disease is irritable bowel syndrome.

[Claim 43]

The use according to claim 39, wherein the bowel-related disease is Crohn's disease.