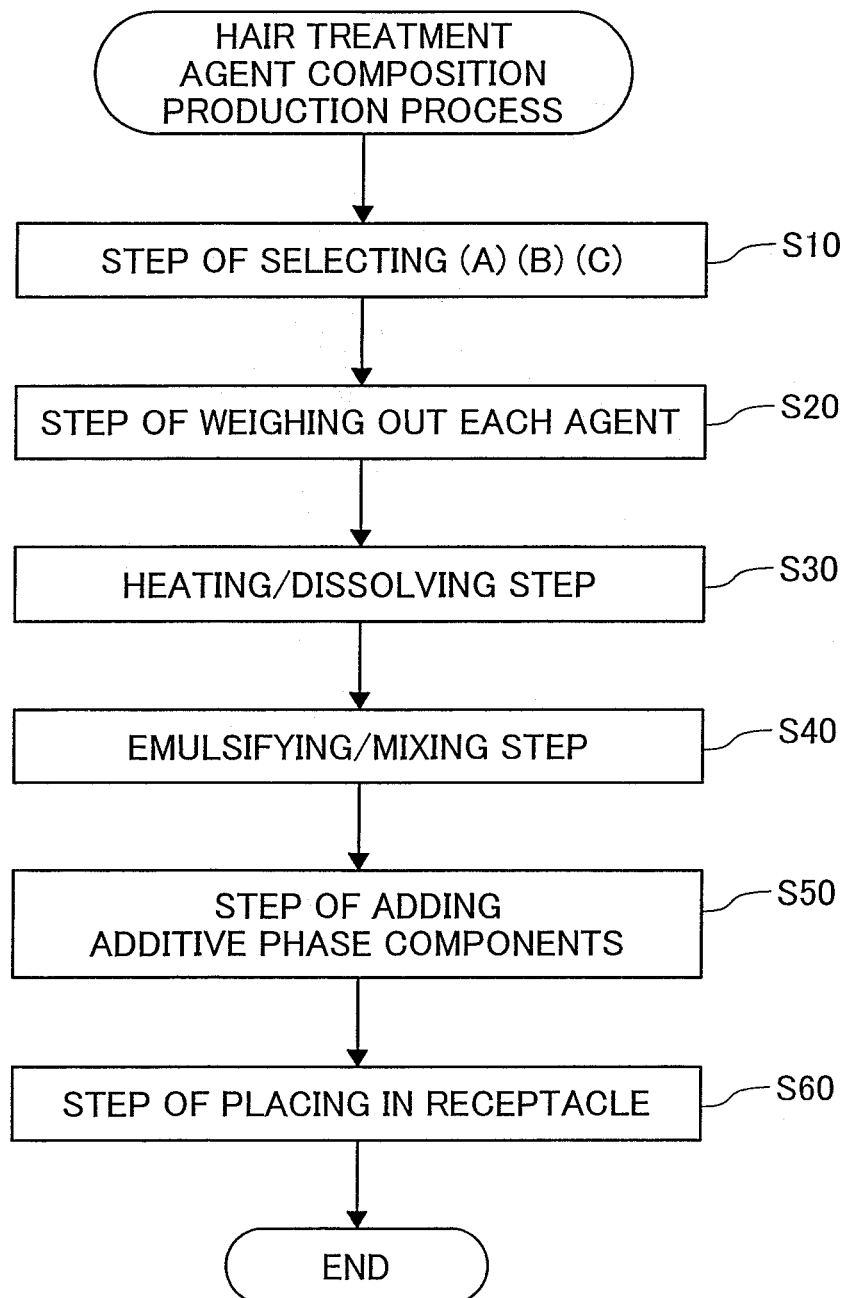


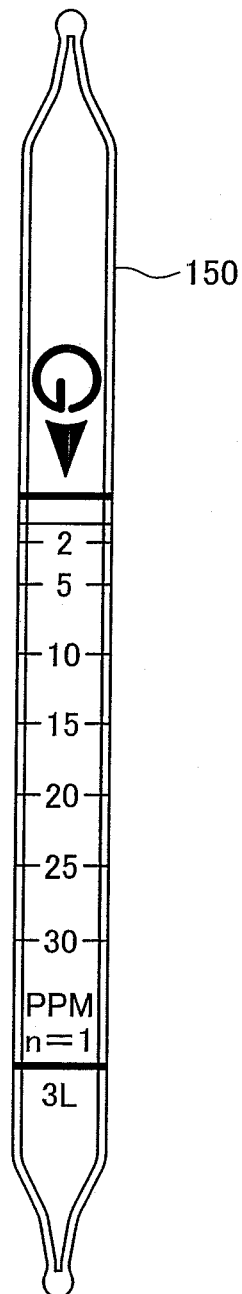
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Fig.1



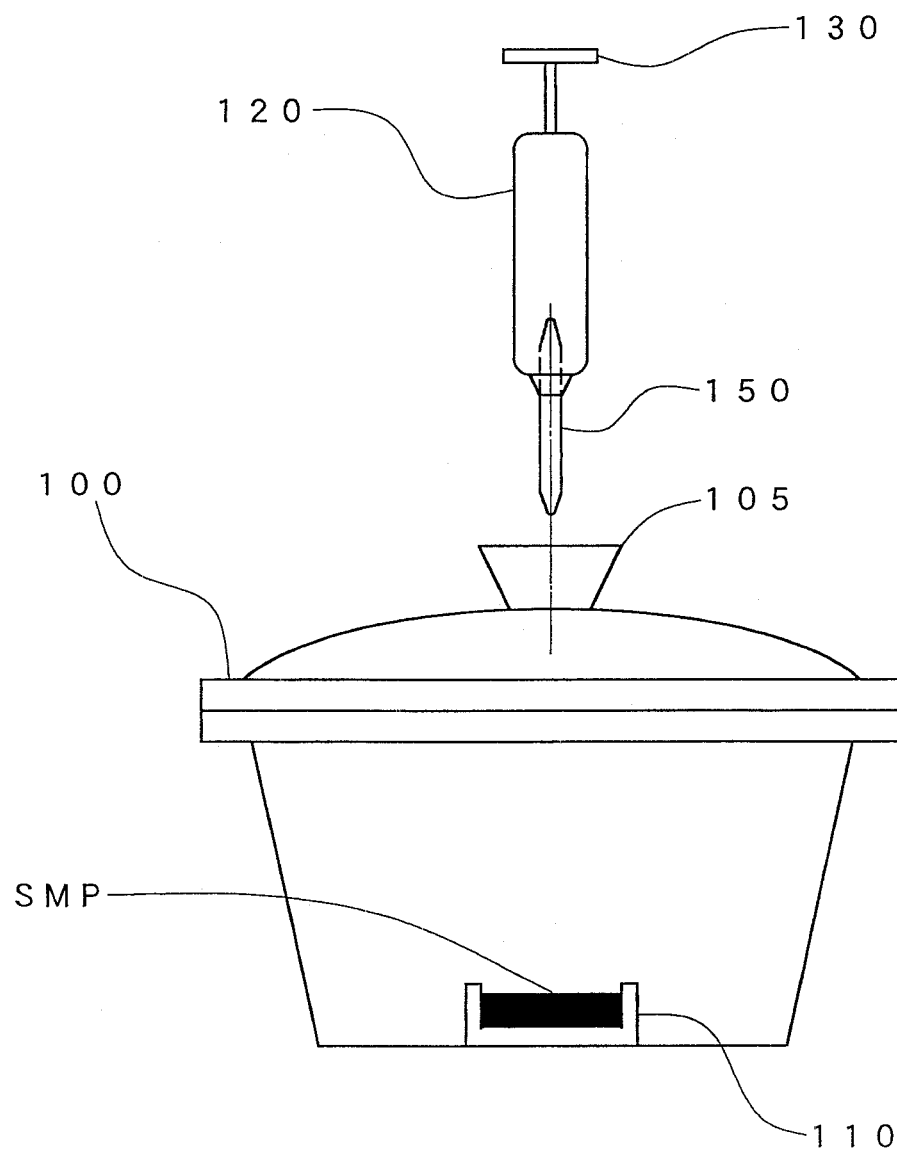
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Fig.2



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Fig.3



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Fig.4

CL.		Ammonia	amines	hydrogen sulfide	mercaptan
		1 min, 2 strokes pink → yellow	1 min, 1 stroke pink → yellow	1 min, 2 strokes light yellow → light brown	1.5 min, 4 strokes yellow → red
C	50% ammonium thioglycolate liquid	30ppm or more	100ppm or more	2. 0ppm or more	4ppm or more
A	special reagent grade 25% aqueous ammonia	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
B	NIKKOL BS-20	1ppm	3ppm	0. 05ppm or less	0. 05ppm or less
B	NIKKOL BC-2	0. 5ppm	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	NIKKOL BC-5. 5	0. 5ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less
B	NIKKOL BC-15TX	0. 2ppm or less	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	NAA 45	0. 5ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
B	para-phenylenediamine	0. 75ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less
B	5-amino-ortho-cresol	0. 5ppm	0. 4ppm	0. 05ppm or less	0. 05ppm or less
B	para-aminophenol	0. 5ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	propylene glycol	0. 2ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	hydrogen peroxide food additive	0. 2ppm or less	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	Japanese Pharmacopoeia phenacetin	0. 2ppm	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	special reagent grade phosphoric acid	0. 2ppm	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	sodium dihydrogen phosphate	0. 2ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	disodium hydrogen phosphate (anhydrous)	0. 5ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less
A	IPA	3ppm	2. 5ppm	0. 05ppm or less	0. 15ppm
B	SH200C oil 10CS	0. 2ppm	0. 4ppm	0. 05ppm or less	0. 05ppm or less
B	SH200 oil 10000 cs	0. 5ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less
B	KF56	0. 5ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less
B	PEG #200	1ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	CLEWAT T	0. 2ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	guanidine carbonate	0. 5ppm	0. 4ppm	0. 05ppm or less	0. 05ppm or less
B	refined urea	1ppm	0. 6ppm	0. 05ppm or less	0. 05ppm or less
B	CATINAL CTC-70ET	0. 4ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less

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Fig.5

		ammonia 1 min, 2 strokes pink → yellow	amines 1 min, 1 stroke pink → yellow	hydrogen sulfide 1 min, 2 strokes light yellow → light brown	mercaptan 1.5 min, 4 strokes yellow → red
C	sodium sulfite	0. 2ppm	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
C	VISCORIN	0. 2ppm or less	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
A	80% monoethanolamine liquid	4ppm	10ppm or more 20ppm(180amines)	0. 05ppm or less	0. 05ppm or less
B	CATNAL STC-70ET	0. 2ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
B	KONOORU 1695	0. 2ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	Promoils SILK-1000	0. 2ppm or less	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	NIKKOL SCS	0. 2ppm or less	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	NIKKOL BS-2	0. 2ppm	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	KAYDOL	0. 2ppm	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
B	NIKKOL HCO-10	1ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
B	NIKKOL PBC-34	0. 2ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
B	sodium bromate	0. 5ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
C	L-cysteine hydrochloride monohydrate	0. 5ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less

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Fig.6

	Example 1	Example 2	Example 3	Comparison 1	Comparison 2	Comparison 3
hair dyeing agent Agent 1						
purified water	balance	balance	balance	balance	balance	balance
ammonium thioglycolate (50%)	—	—	—	1. 0	—	1. 0
sodium sulfite	1. 0	—	0. 5	0. 5	0. 5	—
ascorbic acid	—	1. 0	0. 5	—	0. 5	—
aqueous ammonia (25%)	—	—	—	—	3. 0	6. 0
monoethanolamine (80%)	7. 0	7. 0	7. 0	7. 0	3. 5	7. 0
stearyl trimethylammonium chloride	0. 7	0. 7	0. 7	0. 7	0. 7	0. 7
nonionic based solubilizing agent	4. 0	4. 0	4. 0	4. 0	4. 0	4. 0
liquid paraffin	12. 0	12. 0	12. 0	12. 0	12. 0	12. 0
stearyl alcohol	2. 0	2. 0	2. 0	2. 0	2. 0	2. 0
cetanol	0. 3	0. 3	0. 3	0. 3	0. 3	0. 3
hydrolyzed silk liquid	0. 5	0. 5	0. 5	0. 5	0. 5	0. 5
para-phenylenediamine	0. 1	0. 1	0. 1	0. 1	0. 1	0. 1
5-amino-ortho-cresol	0. 2	0. 2	0. 2	0. 2	0. 2	0. 2
para-aminophenol	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4
propylene glycol	8. 5	8. 5	8. 5	8. 5	8. 5	8. 5
fragrance	—	—	—	0. 6	0. 6	0. 6
Agent 2						
purified water	balance	balance	balance	balance	balance	balance
aqueous hydrogen peroxide (35%)	16. 5	16. 5	16. 5	16. 5	16. 5	16. 5
sodium cetyl sulfate	0. 5	0. 5	0. 5	0. 5	0. 5	0. 5
propylene glycol	10. 0	10. 0	10. 0	10. 0	10. 0	10. 0
phenacetin	0. 05	0. 05	0. 05	0. 05	0. 05	0. 05
cetanol	1. 0	1. 0	1. 0	1. 0	1. 0	1. 0
pH adjuster	q.v.	q.v.	q.v.	q.v.	q.v.	q.v.
odor before use (Agent 1)	⊙	⊙	⊙	△	×	×
before use (Agent 2)	⊙	⊙	⊙	⊙	⊙	⊙
before use (mixture)	⊙	⊙	⊙	△	×	×
during use	⊙	⊙	⊙	△	×	×
after use	⊙	⊙	⊙	△	×	×
tensile strength (kg/mm ²)	33	35	34	30	29	29

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Fig.7

	Example 4	Example 5	Comparison 4	Comparison 5	Comparison 6
decolorizing agent Agent 1					
purified water	balance	balance	balance	balance	balance
aqueous ammonia (25%)	—	—	4. 5	4. 5	9. 0
monoethanolamine (80%)	10. 0	—	5. 0	—	—
monoisopropanolamine	—	10. 0	—	5. 0	—
stearyl trimethylammonium chloride	1. 0	1. 0	1. 0	1. 0	1. 0
nonionic based solubilizing agent	3. 0	3. 0	3. 0	3. 0	3. 0
liquid paraffin	5. 0	5. 0	5. 0	5. 0	5. 0
dimethyl polysiloxane	7. 0	7. 0	7. 0	7. 0	7. 0
methyl phenyl polysiloxane	3. 0	3. 0	3. 0	3. 0	3. 0
stearyl alcohol	1. 5	1. 5	1. 5	1. 5	1. 5
cetanol	2. 0	2. 0	2. 0	2. 0	2. 0
hydrolyzed silk liquid	0. 5	0. 5	0. 5	0. 5	0. 5
fragrance	—	—	0. 6	0. 6	0. 6
Agent 2					
purified water	balance	balance	balance	balance	balance
aqueous hydrogen peroxide (35%)	16. 5	16. 5	16. 5	16. 5	16. 5
sodium cetyl sulfate	0. 5	0. 5	0. 5	0. 5	0. 5
propylene glycol	10. 0	10. 0	10. 0	10. 0	10. 0
phenacetin	0. 05	0. 05	0. 05	0. 05	0. 05
cetanol	1. 0	1. 0	1. 0	1. 0	1. 0
pH adjuster	q.v.	q.v.	q.v.	q.v.	q.v.
odor before use (Agent 1)	⊙	⊙	x	x	x
before use (Agent 2)	⊙	⊙	⊙	⊙	⊙
before use (mixture)	⊙	⊙	x	x	x
during use	⊙	⊙	x	x	x
after use	⊙	⊙	△	△	x
tensile strength (kg/mm ²)	35	34	29	28	28

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Fig.8

	Example 6	Example 7	Example 8	Comparison 7	Comparison 8	Comparison 9
permanent wave agent (for waving) Agent 1						
purified water	balance	balance	balance	balance	balance	balance
L-cysteine hydrochloride	7.0	7.0	7.0	7.0	7.0	7.0
guanadine carbonate	—	5.0	1.5	—	2.3	—
aqueous ammonia (25%)	—	—	—	3.0	1.7	7.0
monoethanolamine (80%)	7.5	—	6.5	4.0	—	—
urea	—	0.5	0.5	—	0.5	0.5
hydrolyzed silk liquid	0.5	0.5	0.5	0.5	0.5	0.5
stearyl trimethylammonium chloride	1.5	1.5	0.5	1.5	1.5	1.5
cetyl trimethylammonium chloride	0.3	0.3	1.5	0.3	0.3	0.3
nonionic based solubilizing agent	1.5	1.5	0.3	1.5	1.5	1.5
dimethyl polysiloxane	1.0	1.0	1.5	1.0	1.0	1.0
methyl phenyl polysiloxane	2.0	2.0	1.0	2.0	2.0	2.0
fragrance	—	—	—	0.3	0.3	0.3
Agent 2						
purified water	balance	balance	balance	balance	balance	balance
sodium bromate	10.0	10.0	10.0	10.0	10.0	10.0
stearyl trimethylammonium chloride	1.5	1.5	1.5	1.5	1.5	1.5
cetyl trimethylammonium chloride	0.5	0.5	0.5	0.5	0.5	0.5
nonionic based solubilizing agent	1.5	1.5	1.5	1.5	1.5	1.5
dimethyl polysiloxane	2.0	2.0	2.0	2.0	2.0	2.0
pH adjuster	q.v.	q.v.	q.v.	q.v.	q.v.	q.v.
odor before use (Agent 1)	⊙	⊙	⊙	x	x	x
before use (Agent 2)	⊙	⊙	⊙	⊙	⊙	⊙
during use	⊙	⊙	⊙	x	x	x
after use	⊙	⊙	⊙	△	△	x
tensile strength (kg/mm ²)	35	34	35	27	26	25

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Fig.9

	ammonia	amines	hydrogen sulfide	mercaptan
	1 min, 2 strokes pink → yellow	1 min, 1 stroke pink → yellow	1 min, 2 strokes light yellow → light brown	1.5 min, 4 strokes yellow → red
Example 1 Agent 1	1 ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
Example 1 Agent 2	0. 2ppm or less	0. 1ppm or less	0. 05ppm or less	0. 05ppm or less
Example 1 mixture	1ppm	0. 75ppm	0. 05ppm or less	0. 05ppm or less
Example 2 Agent 1	1ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
Example 2 mixture	0. 75ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
Example 3 Agent 1	0. 5ppm	0. 5ppm	0. 05ppm or less	0. 05ppm or less
Example 3 mixture	0. 6ppm	0. 3ppm	0. 05ppm or less	0. 05ppm or less
Example 4 Agent 1	2ppm	1. 5ppm	0. 05ppm or less	0. 05ppm or less
Example 4 mixture	0. 5ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
Example 5 Agent 1	2ppm	1. 5ppm	0. 05ppm or less	0. 05ppm or less
Example 5 mixture	0. 5ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
Example 6 Agent 1	1ppm	0. 5ppm	0. 2ppm	0. 05ppm or less
Example 6 Agent 2	0. 2ppm	0. 1ppm	0. 05ppm or less	0. 05ppm or less
Example 7 Agent 1	0. 2ppm	0. 1ppm	0. 1ppm	0. 05ppm or less
Example 8 Agent 1	1ppm	0. 5ppm	0. 4ppm	0. 05ppm or less

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Fig.10

	ammonia	amines	hydrogen sulfide	mercaptan
	1 min, 2 strokes pink → yellow	1 min, 1 stroke pink → yellow	1 min, 2 strokes light yellow → light brown	1.5 min, 4 strokes yellow → red
Comparison 1 Agent 1	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 1 mixture	30ppm or more	100ppm or more	0. 05ppm or less	0. 05ppm or less
Comparison 2 Agent 1	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 2 mixture	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 3 Agent 1	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 3 mixture	30ppm or more	100ppm or more	0. 5ppm	4ppm or more
Comparison 4 Agent 1	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 4 mixture	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 5 Agent 1	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 5 mixture	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 6 Agent 1	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 6 mixture	30ppm or more	100ppm or more	0. 05ppm or less	4ppm or more
Comparison 7 Agent 1	30ppm or more	100ppm or more	0. 2ppm	4ppm or more
Comparison 8 Agent 1	30ppm or more	100ppm or more	0. 2ppm	0. 05ppm or less
Comparison 9 Agent 1	30ppm or more	100ppm or more	0. 5ppm	4ppm or more