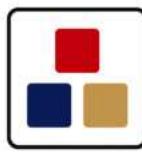


## POLYETHYLENE GLYCOL (PEG)

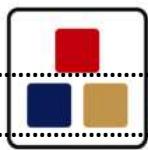
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**Industrial Grade**

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POLYETHYLENE GLYCOL 6000 .....

OPTION 1.....

OPTION 2.....

POLYETHYLENE GLYCOL 10000 ..... 25

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## POLYETHYLENE GLYCOL 200

PHARMACEUTICAL GRADE  
PEG 200

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Colorless	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	3.9-4.8	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	190-210	USP41-NF36
Ethylene Glycol & Di-ethylene Glycol, %wt	Max. 0.25	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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## POLYETHYLENE GLYCOL 300

PHARMACEUTICAL GRADE  
PEG 300

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Colorless	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	5.4-6.4	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	285-315	USP41-NF36
Ethylene Glycol & Di-ethylene Glycol, %wt	Max. 0.25	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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## POLYETHYLENE GLYCOL 400

PHARMACEUTICAL GRADE  
PEG 400

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Colorless	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	6.8-8.0	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	380-420	USP41-NF36
Ethylene Glycol & Di-ethylene Glycol, %wt	Max. 0.25	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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**POLYETHYLENE GLYCOL 1000**

**PHARMACEUTICAL GRADE**  
PEG 1000

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Colorless	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	16.0-19.0	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	990-1100	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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**POLYETHYLENE GLYCOL 1500**

**PHARMACEUTICAL GRADE**  
PEG 1500

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	26.0-33.0	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	1350-1650	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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**POLYETHYLENE GLYCOL 2000**

**PHARMACEUTICAL GRADE**  
PEG 2000

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	38.0-49.0	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	1800-2200	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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**POLYETHYLENE GLYCOL 3350**

**PHARMACEUTICAL GRADE**  
PEG 3350

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	76-110	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	3015-3685	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, ppm	Max. 10 (for each of them)	USP41-NF36



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**POLYETHYLENE GLYCOL 4000**

**PHARMACEUTICAL GRADE**  
PEG 4000

<b>Test</b>	<b>Standard</b>	<b>Reference</b>
Description	practically odorless and tasteless, white, waxy, plastic material having a consistency similar to beeswax, or as creamy white flakes, beads, or powders	USP42-NF37
Solubility	freely soluble in water, soluble in acetone, alcohol, chloroform, ethylene glycol, monomethyl ether, ethyl acetate, and in toluene; insoluble in ether and in hexane	USP42-NF37
Completeness and Color of Solution, 5g/50ml of water	Slightly Hazy	USP42-NF37
Viscosity @ 98.9±0.3°C, Cst	110-158	USP42-NF37
pH, 5% Solution in Water	4.5-7.5	USP42-NF37
Residue on ignition, %wt	Max. 0.1	USP42-NF37
Assay (Average Molecular Weight), g/mol	3600-4400	USP42-NF37
Residual solvents, ppm	Defined as Organic volatile chemicals	USP42-NF37
Ethylene Oxide & 1,4-Dioxane, µg/g	Max. 10 (for each of them)	USP42-NF37



**BORTECH**  
DIS TICARET LIMITED SIRKETI

**POLYETHYLENE GLYCOL 6000**

**PHARMACEUTICAL GRADE**  
PEG 6000

Test	Standard	Reference
Description	practically odorless and tasteless, white, waxy, plastic material having a consistency similar to beeswax, or as creamy white flakes, beads, or powders	USP42-NF37
Solubility	freely soluble in water, soluble in acetone, alcohol, chloroform, ethylene glycol, monomethyl ether, ethyl acetate, and in toluene; insoluble in ether and in hexane	USP42-NF37
Completeness and Color of Solution, 5g/50ml of water	Slightly Hazy	USP42-NF37
Viscosity @ 98.9±0.3°C, Cst	250-390	USP42-NF37
pH, 5% Solution in Water	4.5-7.5	USP42-NF37
Residue on ignition, %wt	Max. 0.1	USP42-NF37
Assay (Average Molecular Weight), g/mol	5400-6600	USP42-NF37
Residual solvents, ppm	Defined as Organic volatile chemicals	USP42-NF37
Ethylene Oxide & 1,4-Dioxane, µg/g	Max. 10 (for each of them)	USP42-NF37



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**POLYETHYLENE GLYCOL 10000**

**PHARMACEUTICAL GRADE**  
PEG 10000

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Water, %	Max. 0.1	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	9500-10500	USP41-NF36
Heavy metals, ppm	Max. 5	USP41-NF36
Ethylene Oxide & 1,4-Dioxane, µg/g	Max. 10 (for each of them)	USP41-NF36



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DIS TICARET LIMITED SIRKETI

## POLYETHYLENE GLYCOL 200

INDUSTRIAL GRADE  
PEG 200

### OPTION 1

Test	Standard	Reference
Appearance at 20°C	Clear liquid	-
Color at 25°C, APHA	Max. 10	ASTM D-1209
Average molecular weight, g/mol	190-210	Calculated
pH (5% in water)	4.5-7.5	ASTM D-1172
Density at 25°C, g/ml	1.124±0.02	ASTM D-1298
Hydroxyl value, mg KOH/g	534-590	ASTM D-4252
Water, percent	Max. 2.0	ASTM E-203
Viscosity at 25°C, cP	51±10	ASTM D-445

### OPTION 2

Test	Standard	Reference
Moles of EO	3EO	-
Appearance	Colorless	Visual
Viscosity @ 40°C, CSt	21-25	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	510-623	ASTM D - 4252
M.W, KG/KMOL	180-220	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

### OPTION 3

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Colorless	USP33-NF28
Viscosity @ 98.9±0.3°C, Cst	3.9-4.8	USP33-NF28
pH, 10% Solution in Water	4.5-7.5	DIN19268
Hydroxyl value, mg KOH/g	534-590	ASTM D4252
Assay (Average Molecular Weight), g/mol	190-210	-
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

### POLYETHYLENE GLYCOL 300

INDUSTRIAL GRADE  
PEG 300

#### OPTION 1

Test	Standard
Appearance @20°C	Colorless
Density @25°C Kg/lit	1.125±0.02
PH	4.5-7.5
Mg KOH/gr. mg KOH/gr	356-394
M.W, KG/KMOL kg/kmol	275-315
Water content, WT.% wt.%	MAX 2.0
Viscosity @25°C cp	70±5

#### OPTION 2

Test	Standard	Reference
Moles of EO	5EO	-
Appearance	Colorless	Visual
Viscosity @ 40°C, CSt	31-35	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	340-415	ASTM D - 4252
M.W, KG/KMOL	270-330	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

#### OPTION 3

Test	Standard	Reference
Color, pt-co	Max. 25	ASTM D1209
Viscosity @ 98.9±0.3°C, Cst	5.4-6.4	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	285-315	USP41-NF36
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

## POLYETHYLENE GLYCOL 400

INDUSTRIAL GRADE  
PEG 400

### OPTION 1

Test	Standard	Reference
Appearance at 20°C	Clear liquid	-
Color at 25°C, APHA	Max. 10	ASTM D-1209
Average molecular weight, g/mol	380-420	Calculated
pH (5% in water)	4.5-7.5	ASTM D-1172
Density at 25°C, g/ml	1.125±0.02	ASTM D-1298
Hydroxyl value, mg KOH/g	264-300	ASTM D-4252
Water, percent	Max. 2.0	ASTM E-203
Viscosity at 25°C, cP	89±10	ASTM D-445

### OPTION 2

Test	Standard	Reference
Moles of EO	8EO	-
Appearance	Colorless	Visual
Viscosity @ 40°C, CSt	40-45	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	261-303	ASTM D - 4252
M.W, KG/KMOL	370-440	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

### OPTION 3

Test	Standard	Reference
Color, pt-co	Max. 25	ASTM D1209
Viscosity @ 98.9±0.3°C, Cst	6.8-8.0	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	380-420	USP41-NF36
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

## POLYETHYLENE GLYCOL 600

INDUSTRIAL GRADE  
PEG 600

### OPTION 1

Test	Standard	Reference
Appearance at 25°C	Clear liquid	-
Color at 50°C, APHA	Max. 10	ASTM D-1209
Average molecular weight, g/mol	570-630	Calculated
pH (5% in water)	4.5-7.5	ASTM D-1172
Density at 40°C, g/ml	1.125±0.02	ASTM D-1298
Hydroxyl value, mg KOH/g	178-196	ASTM D-4252
Water, percent	Max. 2.0	ASTM E-203
Viscosity at 25°C, cP	136±10	ASTM D-445

### OPTION 2

Test	Standard	Reference
Moles of EO	13EO	-
Appearance	Colorless	Visual
Viscosity @ 40°C, CSt	60-66	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	172-204	ASTM D - 4252
M.W, KG/KMOL	550-650	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

### OPTION 3

Test	Standard	Reference
Color, pt-co	Max. 25	ASTM D1209
Viscosity @ 98.9±0.3°C, Cst	9.9-11.3	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Residue on ignition, %wt	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	570-630	USP41-NF36
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

### POLYETHYLENE GLYCOL 1000

INDUSTRIAL GRADE  
PEG 1000

#### OPTION 1

Test	Standard	Reference
Moles of EO	22EO	-
Appearance	White Paste	Visual
Viscosity @ 40°C, CSt	36-40	ASTM D - 445
pH	5-7	ASTM D - 1172
Mg KOH/gr	106-119	ASTM D - 4252
M.W, KG/KMOL	940-1060	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

#### OPTION 2

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Colorless	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	16-19	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Hydroxyl value, mg KOH/g	107-118	ASTM D4252
Assay (Average Molecular Weight), g/mol	900-1000	USP41-NF36
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

**POLYETHYLENE GLYCOL 1500**

**INDUSTRIAL GRADE**  
PEG 1500

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	26-33	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Hydroxyl value, mg KOH/g	70-80	ASTM D4252
Assay (Average Molecular Weight), g/mol	1350-1650	USP41-NF36
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

## POLYETHYLENE GLYCOL 2000

INDUSTRIAL GRADE  
PEG 2000

### OPTION 1

Test	Standard	Reference
Moles of EO	45EO	-
Appearance	Flake	Visual
Viscosity @ 40°C, CSt	80-100	ASTM D - 445
PH	5.7	ASTM D - 1172
Mg KOH/gr	51-62	ASTM D - 4252
M.W, KG/KMOL	1810-2200	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

### OPTION 2

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	38-49	USP41-NF36
pH, 5% Solution in Water	4.5-7.5	USP41-NF36
Hydroxyl value, mg KOH/g	51-62	ASTM D4252
Assay (Average Molecular Weight), g/mol	1800-2200	USP41-NF36
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

**POLYETHYLENE GLYCOL 3000**

**INDUSTRIAL GRADE**  
PEG 3000

Test	Standard	Reference
Moles of EO	72EO	-
Appearance	Flake	Visual
Viscosity @ 40°C, CSt	150-210	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	25.5-29.5	ASTM D - 4252
M.W, KG/KMOL	2700-3300	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6



**BORTECH**  
DIS TICARET LIMITED SIRKETI

**POLYETHYLENE GLYCOL 3350**

**INDUSTRIAL GRADE**  
PEG 3350

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP39-NF34
Viscosity @ 98.9±0.3°C, Cst	76-110	USP39-NF34
pH, 5% Solution in Water	4.5-7.5	USP39-NF34
Hydroxyl value, mg KOH/g	31.9-35.5	ASTM D4252
Assay (Average Molecular Weight), g/mol	3015-3685	USP39-NF34
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

## POLYETHYLENE GLYCOL 4000

INDUSTRIAL GRADE  
PEG 4000

### OPTION 1

Test	Standard	Reference
Moles of EO	93EO	-
Appearance	Flake	Visual
Viscosity @ 40°C, CSt	260-360	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	25-30	ASTM D - 4252
M.W, KG/KMOL	3740-4480	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

### OPTION 2

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP42-NF37
Viscosity @ 98.9±0.3°C, Cst	110-158	USP42-NF37
pH, 5% Solution in Water	4.5-7.5	USP42-NF37
Hydroxyl value, mg KOH/g	26.5-29.5	ASTM D4252
Assay (Average Molecular Weight), g/mol	3600-4400	USP42-NF37
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

### POLYETHYLENE GLYCOL 6000

INDUSTRIAL GRADE  
PEG 6000

#### OPTION 1

Test	Standard	Reference
Moles of EO	152EO	-
Appearance	Flake	Visual
Viscosity @ 40°C, CSt	600-900	ASTM D - 445
PH	5-7	ASTM D - 1172
Mg KOH/gr	17-22	ASTM D - 4252
M.W, KG/KMOL	5100-7000	Calculated
Water content, WT.%	0.5 Max.	BALLESTRA B - Z6

#### OPTION 2

Test	Standard	Reference
Color of Solution, 5g/50ml of Water	Slightly Hazy	USP41-NF36
Viscosity @ 98.9±0.3°C, Cst	250-390	USP42-NF37
pH, 5% Solution in Water	4.5-7.5	USP42-NF37
Residue on ignition	Max. 0.1	USP41-NF36
Assay (Average Molecular Weight), g/mol	5400-6600	USP42-NF37
Water, %	Max. 2	ASTM E203



**BORTECH**  
DIS TICARET LIMITED SIRKETI

**POLYETHYLENE GLYCOL 10000**

**INDUSTRIAL GRADE**  
PEG 10000

<b>Test</b>	<b>Standard</b>	<b>Reference</b>
Color of Solution, 5g/50ml of Water	Colorless	USP33-NF28
Viscosity @ 20°C, Cst (50% solution)	450-750	DIN53019
pH, 10% Solution in Water	4.5-7.5	DIN19268
Hydroxyl value, mg KOH/g	9-12	ASTM D4252
Assay (Average Molecular Weight), g/mol	9000-11000	-
Water, %	Max. 2	ASTM E203