BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Leucovorin 50 mg/5 mL (GMP) (F)(PFL) no preservative[1]	N/A	10 mg/mL[1]	discard unused portion[1]	syringe	8 h RT[1,2]	
				0.05-10 mg/mL NS, D5W, Ringer's, LR, D10W, D5NS[1,2] (e.g., 50-250 mL*)	**NS**, D5W, LR, Ringer's: 24 h RT[1] D10W, D5-NS: 8 h RT[1]	
Leucovorin 50 mg/5 mL 500 mg/50 mL (Pfizer/Hospira) (F)(PFL) no preservative[3]	N/A	10 mg/mL[3]	8 h[3]	syringe	8 h RT[3]	
				0.05 – 10 mg/mL **NS**, D5W, LR, Ringer's, D10W, D5NS[3] (e.g., 50-250 mL*)	**NS**, D5W, LR, Ringer's: 24 h RT[3] D10W, D5NS: 8 h RT[3]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Leucovorin 50 mg/5 mL 500 mg/50 mL (Teva) (F)(PFL) no preservative[4]	N/A	10 mg/mL[5]	discard unused portion[5]	syringe	8 h[6,7]	
				0.4 - 4.8 mg/mL **NS**, D5W[8] (e.g., 50-250 mL*)	72 h **F**, RT[8]	
				0.06 - 0.4 mg/mL **NS**, D5W[4]	NS: 24 h RT[4] D5W: 12 h RT[4]	
				0.06 - 1 mg/mL Ringer's, Lactated Ringer's, D10W, D10NS[4]	Ringer's, LR: 24 h RT[4] D10W: 12 h RT[4] D10NS: 6 h RT[4]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Melphalan 50 mg (GSK) (RT)(PFL) no preservative[9]	10mL supplied diluent[9] immediately after adding diluent, shake vigorously[9] record time of reconstitution	5 mg/mL[9]	2 h RT[9] **do NOT refrigerate**	0.1 – 0.45 mg/mL in **NS** only[9] (e.g., greater than 45 mg and less than or equal to 110 mg in 250 mL NS)*	complete administration within 60 min from time of initial reconstitution at RT[10]	
Mesna 400 mg/4 mL 1000 mg/10 mL (Baxter) (RT) no preservative[11]	N/A	100 mg/mL[11] (use filter needle to withdraw from ampoule)	discard unused portion[11]	greater than 1 mg/mL in D5W, D5½NS, NS, LR[11-13]	complete administration within 24 h RT[11]	
Mesna 1000 mg/10 mL 5000 mg/50 mL (Baxter) (RT) preservative[11]	N/A	100 mg/mL[11]	8 days RT[11] (vial may be punctured up to 4 times)[11]	greater than 1 mg/mL in D5W, D5½NS, NS, LR[11-13]	complete administration within 24 h RT[11]	
Mesna 1000 mg/10mL (Fresenius Kabi) (RT) preservative[14]	N/A	100 mg/mL[14]	14 d **RT,F**[14,15]	greater than or equal to 1 mg/mL in NS or D5W[16]	24 h RT, 48 h F[14]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Methotrexate 50 mg/2mL 500 mg/20mL 1 g/40mL (Accord) (RT)(PFL) no preservative[17]	N/A	25 mg/mL[17]	50mg: discard unused portion[17] 500 mg or 1 g: 8 h RT[17]	syringe	use within 8 h RT of initial puncture[17]	- for high-dose regimens (e.g., 1-12 g/m^2 as a single dose)[18-22]: use preservative-free methotrexate[17] - do not use for IT injection
				0.4–2 mg/mL **NS**, D5W[17] (100 mL* **NS**, D5W)	use within 24 h RT of initial puncture[17] **(PFL)	
				high dose (e.g., 1-12 g/m^2 as a single dose)[18-22]: 1000 mL* NS	use within 24 h RT of initial puncture[17] **(PFL)	
Methotrexate **<u>IT Injection</u>** Only preservative free methotrexate may be administered by the intrathecal route[23] 50 mg/2mL (Accord) (RT)(PFL) no preservative[17]	N/A	25 mg/mL[17]	discard unused portion[17]	qs to 6 mL with preservative free NS[24,25]	use within 4 h of initial puncture[2]	- auxiliary info[2] - label to include route in full (i.e., INTRATHECAL injection) attached to both syringe and outer ziplock bag[26]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Methotrexate 50 mg/2mL 500 mg/20mL (Accord) (RT)(PFL) preservative[17]	N/A	25 mg/mL[17]	14 d F[2,17]	syringe	14 d **F**[2]	- contains benzyl alcohol[17] - do NOT use for high-dose regimens (e.g., 1-12 g/m^2 as a single dose) [17] - do NOT use for IT injection[17]
				0.4–2 mg/mL **NS**, D5W[17] (100 mL* **NS**, D5W)	24 h RT[17]	
Methotrexate 50 mg/2mL 500 mg/20mL 1 g/40mL 2.5 g/100 mL (Pfizer/Hospira) (RT)(PFL) no preservative[27]	N/A	25 mg/mL[27]	50mg: discard unused portion[27] 500 mg, 1 g, or 2.5 g: 8 h RT[27]	syringe	use within 8 h RT of initial puncture[27]	- for high-dose regimens (e.g., 1-12 g/m^2 as a single dose)[18-22]: use preservative-free methotrexate[27] - do not use for IT injection
				0.4–2 mg/mL **NS**, D5W[27] (100 mL* **NS**, D5W)	use within 24 h RT of initial puncture[27] **(PFL)	
				high dose (e.g., 1-12 g/m^2 as a single dose)[18-22]: 1000 mL* NS	use within 24 h RT of initial puncture[27] **(PFL)	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Methotrexate **IT Injection** Only preservative free methotrexate may be administered by the intrathecal route[23] 50 mg/2mL (Pfizer/Hospira) (RT)(PFL) no preservative[27]	N/A	25 mg/mL[27]	discard unused portion[27]	qs to 6 mL with preservative free NS[24,25]	use within 4 h of initial puncture[15]	- auxiliary info[2]: "IT" - label to include route in full (i.e., INTRATHECAL injection) attached to both syringe and outer ziplock bag[26]
Methotrexate 50 mg/2mL 500 mg/20mL (Pfizer/Hospira) (RT)(PFL) preservative[27]	N/A	25 mg/mL[27]	14 d F[15,27]	syringe 0.4–2 mg/mL **NS**, D5W[27] (100 mL* **NS**, D5W)	14 d **F**[15] 24 h RT[27]	- contains benzyl alcohol[27] - do NOT use for high-dose regimens (e.g., 1-12 g/m^2 as a single dose) [27] - do NOT use for IT injection[27]
Mitomycin 20 mg (Accord) (RT)(PFL) no preservative[28]	40 mL SWI[28] shake well[28]	0.5 mg/mL[28]	6 h RT, 72 h F[28] **(PFL)[28]	syringe	6 h RT, 72 h F[28] **(PFL)[28]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Mitomycin **intravesical** 20 mg (Accord) (RT)(PFL) no preservative[28]	40 mL SWI[28] shake well[28]	0.5 mg/mL[28]	6 h RT, 72 h F[28] **(PFL)[28]	syringe	6 h RT, 72 h F[28] **(PFL)[28]	
	10 mL SWI[29] shake well[28]	2 mg/mL[29]	use immediately after preparation to prevent precipitation[30]	syringe	use immediately after preparation to prevent precipitation[30]	- may precipitate due to low solubility[30,31] - do NOT refrigerate[30]
Mitomycin **intraperitoneal** 20 mg (Accord) (RT)(PFL) no preservative[28]	40 mL SWI[28] shake well[28]	0.5 mg/mL[28]	6 h RT, 72 h F[28] **(PFL)[28]	0.02-0.04 mg/mL[28] **NS**, sodium lactate[28]	NS: 3 h RT, 18 h F[28] sodium lactate: 3 h RT, 6 h F[28]	
Mitomycin 20 mg (Teva/Novopharm) (RT)(PFL) no preservative[32]	40 mL SWI[32] shake well[32]	0.5 mg/mL[32]	6 h RT, 72 h F[32] **(PFL)[32]	syringe	6 h RT, 72 h F[32] **(PFL)[32]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Mitomycin <u>intravesical</u> 20 mg (Teva/Novopharm) (RT)(PFL) no preservative[32]	40 mL SWI[32] shake well[32]	0.5 mg/mL[32]	6 h RT, 72 h F[32] **(PFL)[32]	syringe	6 h RT, 72 h F[32] **(PFL)[32]	
	10 mL SWI[29] shake well[32]	2 mg/mL[29]	use immediately after preparation to prevent precipitation[30]	syringe	use immediately after preparation to prevent precipitation[30]	- may precipitate due to low solubility[30,31] - do NOT refrigerate[30]
Mitomycin <u>intraperitoneal</u> 20 mg (Teva/Novopharm) (RT)(PFL) no preservative[32]	40 mL SWI[32] shake well[32]	0.5 mg/mL[32]	6 h RT, 72 h F[32] **(PFL)[32]	0.02-0.04 mg/mL[32] **NS**, sodium lactate[32]	NS: 6 h RT, 18 h F[32] sodium lactate: 6 h RT, F[32]	
mitoXANTRONE 20 mg/10 mL (Fresenius Kabi) (RT) no preservative[33]	N/A	2 mg/mL[33]	discard unused portion[33]	**NS,** D5W[33] Greater than or equal to *50 mL[33]	24 h RT[33]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
mitoXANTRONE 20 mg/10 mL 25 mg/12.5 mL (Hospira) (RT)(PFL) no preservative[34]	N/A	2 mg/mL[34]	discard unused portion[34]	0.2-0.6 mg/mL[34] **NS**, D5W[34] Greater than or equal to *50 mL[34]	NS: 24 h **F**, RT[34] **(PFL)[34]	
mitoXANTRONE 20 mg/10 mL (Teva/Novopharm) (RT)(PFL) no preservative[35]	N/A	2 mg/mL[35]	discard unused portion[35]	Greater than or equal to *50 mL **NS**, D5W[35]	24 h RT[35] **(PFL)[36]	
Nivolumab 40 mg/4 mL 100 mg/10 mL (BMS) (F)(PFL) do not shake no preservative[37]	N/A	10 mg/mL[37]	discard unused portion[37]	1-10 mg/mL **NS**, D5W[37] (50-100* mL) mix by gentle inversion; do not shake[37]	complete administration within 8 h RT or 24 h F[37] **(PFL)[37]	- administer with a 0.2 to 1.2 micron in-line filter[37] - discard if cloudy or has pronounced colour change (should be clear to pale yellow)[37]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
oBINutuzumab 1000 mg/40 mL (Hoffman-La Roche) (F)(PFL)** do not shake no preservative[38]	N/A	25 mg/mL[38]	discard unused portion[39]	100 mg: in 100 mL **NS**[38] 900 mg: in 250 mL **NS**[38] 1000 mg: in 250 mL **NS**[38]	**24 h F**, 48 h RT[38,40]	-once removed from the fridge, diluted product is stable for an additional 48 h RT[38,40] - do NOT shake[38] - do NOT use dextrose containing solutions[38]
Octreotide 50 mcg/mL 100 mcg/mL 500 mcg/mL (Omega) (F)(PFL) no preservative[41]	N/A	50 mcg/mL[41] 100 mcg/mL[41] 500 mcg/mL[41]	Use within 4 h[41]	NS[41] volume adjusted to ensure a continuous infusion of octreotide at 25 mcg/hour[41]	24 h RT[41]	
Octreotide multidose vial: 1000 mcg/5 mL (Omega) (F)(PFL) preservative[41]	N/A	200 mcg/mL[41]	15 d F[41]	NS[41] volume adjusted to ensure a continuous infusion of octreotide at 25 mcg/hour[41]	24 h RT[41]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Octreotide 50 mcg/mL 100 mcg/mL 500 mcg/mL (Teva/Novopharm) (F)(PFL) no preservative[42]	N/A	50 mcg/mL[42] 100 mcg/mL[42] 500 mcg/mL[42]	discard unused portion[42]	SC syringe[42]	use within 4 h[42]	
				infusion: NS[42]	24 h RT[42]	
Octreotide multidose vial: 1000 mcg/5 mL (Teva/Novopharm) (F)(PFL) preservative[42]	N/A	200 mcg/mL[42]	14 d F[42,43]	SC syringe	use within 14 d F[42,43]	
				infusion: NS[42]	24 h RT[42]	
Octreotide (SANDOSTATIN®) 1000 mcg/5 mL (Novartis) (F)(PFL) preservative[44]	N/A	200 mcg/mL[44]	discard unused portion[45]	50–200 mL NS[10,46,47] SC infusion: adjust volume to ensure infusion rate of 25 mcg/h[46]	24 h RT[46]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Octreotide (SANDOSTATIN®) 50 mcg/1 mL 100 mcg/1 mL 500 mcg/1 mL (Novartis) (F)(PFL) no preservative[44]	N/A	50 mcg/mL 100 mcg/mL 500 mcg/mL[44]	discard unused portion[46]	50-100 mL[10,47] NS[46] SC infusion: adjust volume to ensure infusion rate of 25 mcg/h[46]	24 h RT[46]	
Octreotide (SANDOSTATIN LAR®) 10 mg 20 mg 30 mg (Novartis) (F)(PFL) no preservative[45]	2 mL supplied diluent gently run 2 mL down sides of the vial; do NOT disturb for 2–5 min, then swirl moderately[46] record time of reconstitution	10 mg: 5 mg/mL 20 mg: 10 mg/mL 30 mg: 15 mg/mL[46]	discard unused portion[46]	deep intragluteal administration only[46]	use within 4 h of initial reconstitution[7,46]	- do NOT shake

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Olaratumab 500 mg/50 mL (Lilly) (F)(PFL) do not shake no preservative[48]	N/A	10 mg/mL[48]	discard unused portion[39,48]	dilute to a final volume of 250 mL NS[48] do NOT use D5W or other dextrose containing solutions[48] gently invert to mix[48]	complete administration within 24 h F, plus an additional 12 h RT[48]	- do NOT shake[48]
Oxaliplatin 50 mg/10 mL 100 mg/20 mL 200 mg/40 mL (Hospira/Pfizer) (RT) no preservative[49]	N/A	5 mg/mL[49]	discard unused portion[49]	250-500 mL D5W (0.2-0.7 mg/mL[49] do NOT use NS or other chloride-containing solutions[50] do NOT use aluminum-containing needle and syringe[50]	0.2-0.4 mg/mL: 24 h RT or 5 d F plus an additional 8 h RT[49,51] 0.5–2 mg/mL: 24 h RT or 14 d F plus an additional 8 h RT[49,51]	- do NOT use aluminum-containing needle, syringe or tubing[49]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Oxaliplatin 50 mg/10 mL 100 mg/20 mL 150 mg/30 mL 200 mg/40 mL (Sandoz) (RT)(PFL) no preservative[50]	N/A	5 mg/mL[50]	2 d **F**, RT[39,52]	0.2-0.7 mg/mL[50] 250-500 mL D5W[50] do NOT use NS or other chloride-containing solution[50] do NOT use aluminum-containing needle and syringe[50]	0.2-2 mg/mL: 24 h RT, 48 h F[50]	
Oxaliplatin 50 mg/10 mL 100 mg/20 mL 200 mg/40 mL (Teva) (RT)(PFL) no preservative[53]	N/A	5 mg/mL[53]	discard unused portion[53]	250-500 mL D5W (0.2-0.7 mg/mL)[53] do **NOT** use NS or other chloride-containing solution[53] do NOT use aluminum-containing needle and syringe[53]	0.2-2 mg/mL: 24 h RT, 48 h F[53]	- do NOT use aluminum-containing needle, syringe or tubing[53]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
PACLitaxel 30 mg/5 mL 100 mg/16.7 mL 300 mg/50 mL (Accord) (RT)(PFL) no preservative[54]	N/A	6 mg/ mL[54]	30 mg: 48 h RT[39,54] 100 mg: 48 h RT[39,54] 300 mg: 24 h RT[54]	0.3-1.2 mg/mL in **NS**, D5W, D5NS, D5LR[54] (e.g., 100-1000 mL)*	complete administration within 27 h RT[54]	- use non-DEHP bag and tubing with 0.22 micron in-line filter[54] - avoid excessive shaking[54]
PACLitaxel 30 mg/5 mL 100 mg/16.7 mL 300 mg/50 mL (Biolyse) (RT)[55] no preservative[56]	N/A	6 mg/mL[56]	48 h RT[39,57]	0.3-1.2 mg/mL in **NS,** D5W[56] (e.g., 100-1000 mL)*	complete administration within 27 h RT[56,58]	- use non-DEHP bag and tubing with 0.22 micron in-line filter[56]
				0.1 mg/mL in **NS**[59]	44 h **F**, RT[59]	
				0.012-0.12 mg/mL in **NS**[60]	16 h RT[58]	
				devices with spikes (e.g., chemo dispensing pins) **may be used** with vials[61]		

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
PACLitaxel 30 mg/5 mL 100 mg/16.7 mL 150 mg/25 mL 300 mg/50 mL (Hospira) (RT)(PFL) preservative[62]	N/A	6 mg/mL[63]	48 h RT[39,63,64]	0.3-1.2 mg/mL in **NS**, D5W, D5NS, D5LR[63] (e.g., 100-1000 mL)*	complete administration within 27 h RT[63]	- use non-DEHP bag and tubing with 0.22 micron in-line filter[63]
PACLitaxel, nanoparticle, albumin-bound (nab) 100 mg (Celgene) (RT)(PFL) no preservative[65]	20 mL NS[65] - slowly direct diluent against side of vial (i.e., greater than or equal to 1 min) during reconstitution[65] - let stand for greater than or equal to 5 min to wet powder[65] - gently swirl or invert for greater than or equal to 2 min[65]	5 mg/mL[65]	use immediately (RT) or 8 h F[65] **(PFL)[65]	in empty sterile PVC, non-PVC, or non-DEHP infusion bag[65]	48 h F plus an additional 8 h RT[66]	- each vial contains 900 mg human albumin[65] - to prevent foaming, do NOT inject NS directly onto the powder[65] - some settling may occur; use mild agitation to resuspend[65] - administer using a 15 micron filter ONLY (NOTE:filters with a pore size less than 15 microns may cause filter blockage)[67,68]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Pamidronate 30 mg/10 mL 60 mg/10 mL 90 mg/10 mL (Fresenius Kabi) (RT) no preservative[69]	N/A	3 mg/mL[69]	discard unused portion[69]	Less than or equal to 0.36 mg/mL[69] **NS**, D5W[69]	24 h RT[69]	- do **NOT** mix with calcium containing solutions[69]
		6 mg/mL[69]				
		9 mg/mL[69]				
Pamidronate 30 mg/10 mL 60 mg/10 mL 90 mg/10 mL (Hospira) (RT) no preservative[70]	N/A	3 mg/mL[70]	discard unused portion[70]	0.06–0.36 mg/mL in **NS**, D5W[70]	24 h F followed by 24 h RT (total 48 h)[70] **(PFL)[70]	- do **NOT** mix with calcium containing solution (e.g., Ringer's)[70]
		6 mg/mL[70]				
		9 mg/mL[70]				
Pamidronate 30 mg/10 mL 60 mg/10 mL 90 mg/10 mL (Omega) (RT) no preservative[71]	N/A[71]	3 mg/mL[71]	discard unused portion[71]	0.06–0.36 mg/mL in **NS**, D5W[71]	24 h F followed by 24 h RT (total 48 h)[71] **(PFL)[71]	- do **NOT** mix with calcium containing solution (e.g., Ringer's)[71]
		6 mg/mL[71]				
		9 mg/mL[71]				

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Pamidronate 30 mg/10 mL 60 mg/10 mL 90 mg/10 mL (Pfizer) (RT) no preservative[72]	N/A	3 mg/mL[72] 6 mg/mL[72] 9 mg/mL[72]	discard unused portion[72]	0.06-0.36 mg/mL in **NS**, D5W[72]	24 h F followed by 24 h RT (total 48 h)[72] **(PFL)[72]	- do **NOT** mix with calcium containing solution (e.g., Ringer's)[72]
Pamidronate 30 mg/10 mL 60mg/10 mL 90 mg/10 mL (Sandoz Canada) RT no preservative[73]	N/A	3 mg/mL[73] 6 mg/mL[73] 9 mg/mL[73]	discard unused portion[43,73]	**NS**; D5W[73]	24 h RT[73]	- do **NOT** mix with calcium containing solution (e.g., Ringer's)[73]
PANitumumab 100 mg/5 mL 400 mg/20 mL (Amgen) (F)(PFL) do not shake no preservative[74]	N/A	20 mg/mL[74]	discard unused portion[74]	Less than or equal to 1000 mg: 100 mL NS[74] Greater than 1000mg: 150 mL NS[74] 1-10mg/mL[74,75]	24 h **F,** 6 h RT[74,75]	- administer with 0.2 or 0.22 micron in-line filter[74] - solution may contain particulates which do not affect product quality[74] - do not administer if discoloured[74]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
pegaspargase (pegylated asparaginase *E. coli*) 3750 units/5 mL (Shire) (F)(PFL) do not shake no preservative[76]	N/A	750 units/mL[76]	discard unused portion[76]	IM: max volume: 2 mL in children and adolescents; 3 mL in adults if volume greater than above, use multiple sites[76]	syringe: use within 4 h of vial puncture[39,76]	- do NOT shake[76]
				IV: 100 mL **NS**, D5W[76]	bag: use within 4 h of vial puncture[39,76]	
Pembrolizumab 100 mg/4 mL (Merck) (F)(PFL) do not shake no preservatives[77]	N/A	25 mg/mL[77]	discard unused portion[39,77]	1-10 mg/mL **NS**, D5W[77] mix by gentle inversion[77]	complete administration within 6 h RT, 24 h F[77]	- use a 0.2 to 5 micron in-line filter[77] - allow vials and diluted solutions to come to RT prior to use[77] - vials contain 0.25 mL overfill[77]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Pembrolizumab 50 mg (Merck) (F) no preservative[77]	2.3 mL SWI[77] direct diluent against side of vial during reconstitution to avoid foaming[77] allow up to 5 minutes for bubbles to clear[77] do NOT shake[77]	25 mg/mL[77]	6 h RT, 24 h F[77]	1-10 mg/mL NS, D5W[77] mix by gentle inversion[77]	complete administration within 6 h RT, 24 h F[77]	- use 0.2 to 5 micron in-line filter[78] - allow reconstituted vials and diluted solutions to come to RT prior to use[77] - vials can be at RT for up to 24 h prior to use[77] - vials contain 20% overfill[77]
Pemetrexed 100 mg 500 mg (Accord) (RT) no preservative[79]	100 mg: 4.2 mL NS[79] 500 mg: 20 mL NS[79]	25 mg/mL[79]	24 h **F**, RT[79]	100 mL NS[79]	24 h **F**, RT[79]	- do **NOT** mix with calcium containing solution (e.g., Ringer's)[79]
Pemetrexed 100 mg 500 mg (Eli Lilly) (RT) no preservative[80]	100 mg: 4.2 mL NS[80] 500 mg: 20 mL preservative-free NS[80]	25 mg/mL[80]	24 h **F**, RT[80]	100 mL NS[80]	24 h **F**, RT[80]	- do **NOT** mix with calcium containing solution (e.g., Ringer's)[81]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
PERTuzumab 420 mg/14 mL (Roche) (F)(PFL) no preservative[82]	N/A	30 mg/mL[82] do NOT shake[82]	discard unused portion[39,82]	250 mL NS only[82] mix by gentle inversion to avoid foaming[82]	24 h **F**, RT[82]	- do NOT use dextrose containing solutions[82]
Plerixafor 24 mg/1.2 mL (sanofi-aventis) (RT) no preservative[83]	N/A	20 mg/mL[83]	discard unused portion[83]	SC syringe[83]	48 hours RT[43,84]	
Porfimer 15 mg 75 mg (Axcan) (RT)(PFL) no preservative[85]	15 mg: 6.6 mL D5W[85] 75 mg: 31.8 mL D5W[85] record time of reconstitution	2.5 mg/mL[85]	24 h F **(PFL)[85]	syringe[85]	use within 4 h of initial reconstitution[7,86] **(PFL)[85]	- avoid contact with skin and eyes; protect exposed area from light[85]
Raltitrexed 2 mg (Pfizer) (**F**,RT)(PFL) (no preservative)[87]	4 mL SWI[87]	0.5 mg/mL[87]	24 h **F**, RT[87]	50-250 mL **NS**, D5W[87]	complete administration within 24 h **F**, RT[87]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Ramucirumab 100 mg/10 mL 500 mg/50 mL (Eli Lilly) (F)(PFL) (do not shake) no preservative[88]	N/A	10 mg/mL[88]	discard unused portion[88]	250 mL* NS[88] (0.4 – 4 mg/mL)[89] gently invert to mix[88] do NOT shake[88]	4 h RT, 24 h F[88]	- use 0.22 micron filter[88] - do NOT use dextrose containing solutions[88]
riTUXimab 100 mg/10 mL 500 mg/50 mL (Roche) (F)(PFL) no preservative[90]	N/A	10 mg/mL[90]	discard unused portion[90]	1-4 mg/mL **NS**, D5W[90] (e.g., 250-500 mL)*	24 h **F**, 12 h RT[91,92]	- once removed from the fridge, compounded product is stable for 12h RT[91,92]
riTUXimab **subcutaneous** 1400 mg/11.7 mL 1600 mg/13.4 mL (Roche) (F)(PFL) no preservative[93]	N/A	120 mg/mL[93]	discard unused portion[93]	SC syringe[93]	48 h F plus 8 h RT[93]	- contains hyaluronidase[93] - formulations are NOT interchangeable[93]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
romiDEPsin 10 mg (Celgene Inc.) (RT)[94] no preservative[39]	2.2 mL of supplied diluent[94,95] swirl gently to mix[94]	5 mg/mL[94]	8 h RT[94]	500 mL NS[94]	24 h RT[94]	- reconstituted solution will be slightly viscous[96] - vials contain overfill to allow for full drug recovery (drug vial contains 11 mg romidepsin; diluent vial contains 2.4 mL diluent)[94]
Siltuximab 100 mg 400 mg (Janssen) (F)(PFL) no preservative[97]	100 mg: 5.2 mL SWI[97] 400 mg: 20 mL SWI[97] allow vial to come to room temperature prior to use (~30 minutes)[97] gently swirl, do NOT shake[97]	20 mg/mL[97]	2 h RT[97]	250 mL **D5W**[97] dilute to 250 mL final volume by withdrawing volume from bag equal to volume of drug to be added[97]	complete administration within 6 h RT [97]	- use 0.2 micron in-line filter[97]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Streptozocin 1g (Pfizer) (F)(PFL) no preservative[98]	9.5mL **NS**, SWI, D5W[98]	100 mg/mL[98]	48 h F,[98] 24 h RT	syringe[98]	48 h F, 24 h RT[98]	
				50-500 mL* **NS**, D5W, SWI[98]	48 h F, 24 h RT[98]	
Temsirolimus 30 mg/1.2 mL (Wyeth) (F)(PFL)[99,100] no preservative[101]	1.8 mL supplied diluent[99,100]	10 mg/mL[99,100]	24 h RT[99,100] **(PFL)[99]	250 mL NS[99,100]	complete administration within 6 h[99,100]	- use non-DEHP bag and tubing with in-line filter[99,100]
Teniposide 50 mg/5 mL (BMS) (RT) preservative[102]	N/A	10 mg/mL[102]	discard unused portion	50 – 500 mL **NS** or D5W for a final concentration of 0.1-1 mg/mL[102]	0.1-0.4 mg/mL: 24 h RT[102] 1 mg/mL: complete administration within 4 h of preparation RT[102,103]	- do not refrigerate - use non-DEHP bag and tubing[102] - do not use if precipitates[102,103] - contains DMA*** - excessive agitation may cause precipitation[102]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Thiotepa 15 mg 100 mg (Adienne/Methapharm) (F) no preservative[104]	**15 mg:** 1.5 mL SWI[104] **100 mg:** 10 mL SWI[104] to remove haze, filter through 0.22 micron filter after reconstitution[105] record time of reconstitution	10 mg/mL[104]	8 h F[104]	reconstituted solution is hypotonic and must be further diluted with NS prior to use[104] doses ≤ 500 mg: 500 mL NS or with an appropriate volume to achieve 0.5-1 mg/mL concentration[104] doses > 500 mg: 1000 mL NS[104]	4 h RT, 24 h F[104]	- do not use if precipitates are present[104] - reconstituted solution may be used if opalescent[104] - administer with 0.2 micron inline filter[104]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Thiotepa **IT injection** 15 mg 100mg (Adienne/Methapharm) (F) no preservative[104]	diluents containing preservatives should **NOT** be used for intrathecal administration[106] **15 mg:** 1.5 mL SWI[104] **100 mg:** 10 mL SWI[104] to remove haze, filter through 0.22 micron filter after reconstitution[105] record time of reconstitution	10 mg/mL[104]	8 h F[104]	qs to 6 mL with preservative free NS[25]	use within 4 h of initial reconstitution[2]	- auxiliary info[26]: "IT" - label to include route in full (i.e., INTRATHECAL injection) attached to both syringe and outer ziplock bag[26] - do not use if precipitates are present[104] - reconstituted solution may be used if opalescent[104]
Thyrotropin alfa 1.1 mg (Genzyme) (F)(PFL) no preservative[107]	1.2 mL SWI[107] swirl contents[107] do NOT shake	0.9 mg/mL[107]	24 h F[107]	syringe[107]	24 h F[107]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Tocilizumab 80 mg/4 mL 200 mg/10 mL 400 mg/20 mL (Roche) (F)(PFL) no preservative[108]	N/A	20 mg/mL[108]	discard unused portion[108]	100 mL NS[108] dilute to final volume by withdrawing volume from bag equal to volume of drug to be added[108] gently invert to mix[108]	complete administration within 24 h **F**, RT[108] bring to room temperature prior to administration[108]	- to prevent foaming: slowly add drug to infusion bag and gently invert bag to mix[108]
Topotecan 4 mg/4 mL (Accord) (RT)(PFL) no preservative[109]	N/A	1 mg/mL[109]	discard unused portion[2,109]	0.025-0.5 mg/mL 50-100 mL **NS**, D5W[109]	14 d F, 48 h RT[2,109]	
Topotecan 1 mg 4 mg (Actavis) (RT)(PFL) no preservative[110]	**1 mg:** 1.1 mL SWI[110] **4 mg:** 4 mL SWI[110]	1 mg/mL[110]	24 h **F**,RT[110]	0.02-0.5 mg/mL 50-100 mL **NS**, D5W[110]	24 **F**, RT[110]	
Topotecan 4 mg/4 mL (Pfizer/Hospira) (F)(PFL) no preservative[111]	N/A	1 mg/mL[111]	discard unused portion[2,111]	0.02-0.5 mg/mL 50-100 mL **NS**, D5W[111]	24 h **F**, RT[111]	

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Topotecan 4 mg/4 mL (Sandoz) (F)(PFL) no preservative[112]	N/A	1 mg/mL[112]	discard unused portion[112]	0.02-0.5 mg/mL 50-100 mL **NS**, D5W[112]	24 h F[112] **(PFL)[112]	
Trastuzumab (HERCEPTIN®) 440 mg (Roche) (F) preservative[113]	20 mL supplied BWI[113] swirl vial gently; allow to stand undisturbed for 5 min[113]	21 mg/mL[113]	14 d F[39]	250 mL **NS** only[113] do NOT use dextrose containing solutions[113]	24 h **F**, RT[113]	- do NOT shake[113]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Trastuzumab Emtansine (KADCYLA®) 100 mg 160 mg (Roche) (F)(PFL) no preservative[114]	100 mg vial: 5 mL SWI[114] 160 mg vial: 8 mL SWI[114] swirl gently until completely dissolved do NOT shake[114]	20 mg/mL[114]	24 h **F**[114] do NOT freeze[114]	250 mL **NS** or 0.45% sodium chloride only[114] do NOT shake[114]	24 h F[114] do NOT freeze[114]	- do not use if reconstituted solution contains visible particulates or is cloudy or discolored[114] - dextrose 5% solutions cause aggregation of the protein; do not dilute with dextrose containing solutions[114] - use a 0.2 micron in-line filter or 0.22 micron polyethersulfane (PES) filter to administer infusions prepared in NS; filter is optional for solutions in 0.45% NS[114]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
TRC105 (Carotuximab) 100 mg/4 mL 200 mg/8 mL 400 mg/16 mL (Tracon) (F)(PFL) no preservative[115]	N/A	25 mg/mL[115]	discard unused portion[39]	0.6 – 10 mg/mL NS[116] invert gently to mix	complete infusion within 8 h RT, 24 h F[115,116]	- use a 0.2 micron in-line filter for administration[115]
Treosulfan 1 g 5 g (medac) (RT) no preservative[117]	**pre-heat** SWI to 30°C (not higher) **shake vial** carefully before adding the warmed SWI **1 g vial:** 20 mL SWI, while slightly shaking vial and syringe; continue shaking the reconstituted solution for another 2 min[117] **5 g vial:** 100 mL SWI, while slightly shaking vial and syringe; continue shaking the reconstituted solution for another 2 min[117]	50 mg/mL[117]	48 h RT[7,117]	undiluted[118] dilute with **NS** or D5W in empty infusion bag for final concentration = 20 mg/mL[117]	48 h RT[7,117]	- compatible with polytetrafluoroethylene filters[117] - may require vigorous shaking to reconstitute[117]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
vinBLAStine 10 mg/10 mL (Hospira) (F)(PFL) no preservative[119]	N/A	1 mg/mL[119]	discard unused portion[119]	25-50 mL **NS**, D5W[120]	24 h **F**, RT[121,122]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,124]
vinBLAStine 10 mg/10 mL (Teva) (F)(PFL) no preservative[125]	N/A	1 mg/mL[125]	discard unused portion[125]	25-50 mL **NS**, D5W[120,126]	use within 4 h of initial puncture[39]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,124]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
vinCRIStine 2 mg/2 mL 5 mg/5 mL (Hospira) (F)(PFL) no preservative[127]	N/A	1 mg/mL[127]	8 h **F**, RT[127]	50 mL* **NS**, D5W[127]	24 h F, 6 h RT[127] **(PFL)[127]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,124] - for ULYEPOCHR protocol, see entry for EPOCHR (3-in-1 solution containing etoposide, DOXOrubicin, vinCRIStine)

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
vinCRIStine 1 mg/1 mL 2 mg/2 mL 5 mg/5 mL (Teva) (F)(PFL) no preservative[128]	N/A	1 mg/mL[128]	8 h **F**, RT[128]	0.01-0.1 mg/mL **NS,** D5W[128] 25-50 mL **NS**, D5W[129]	24 h F, RT[128]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,124] - for ULYEPOCHR protocol, see entry for EPOCHR (3-in-1 solution containing etoposide, DOXOrubicin, vinCRIStine)
Vinorelbine 10 mg/1 mL 50 mg/5mL (Fresenius Kabi) (F)(PFL) no preservative[130]	N/A	10 mg/mL[130]	discard unused portion[130]	0.5-2.0 mg/mL[130] **NS**, D5W, ½NS, D5½NS, Ringer's, Ringer's Lactate[130]	24 h **F**, RT[130]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,131]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Vinorelbine 10 mg/1 mL 50 mg/5 mL (GMP) (F)(PFL) no preservative[132]	N/A	10 mg/mL[132]	discard unused portion[2]	0.5-2.0 mg/mL[132] 50 mL* **NS**, D5W, ½NS, D5½NS, Ringer's, Ringer's Lactate[132]	24 h **F**, RT[132]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,131]
Vinorelbine 10 mg/1 mL 50 mg/5 mL (Pfizer/Hospira) (F)(PFL) no preservative[133]	N/A	10 mg/mL[133]	discard unused portion[133]	0.5–2.0 mg/mL[133] 50 mL* **NS**, D5W, ½NS, D5½NS, Ringer's, Ringer's Lactate[133]	24 h **F**, RT[133]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,131]
Vinorelbine 10 mg/1 mL 50 mg/5 mL (Teva) (F)(PFL) no preservative[134]	N/A	10 mg/mL[134]	discard unused portion[134]	0.5–2.0 mg/mL[134] 50 mL* **NS**, D5W, ½NS, D5½NS, Ringer's, Ringer's Lactate[134]	24 h **F**, RT[134]	- auxiliary info: WARNING: FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES[123,131]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Zoledronic acid 4 mg/5 mL (Dr Reddy's) (RT) no preservative[135]	N/A	0.8 mg/mL[135]	discard unused portion[135]	100 mL **NS**, D5W[135]	complete infusion within 24 h of preparation[135] **Refrigerate** diluted product if not used immediately after preparation; bring to RT prior to administration[135]	- do **NOT** mix with calcium containing solutions[135]
Zoledronic acid 4 mg/5 mL (Marcan) (RT) no preservative[136]	N/A	0.8 mg/mL[136]	discard unused portion[136]	100 mL **NS**, D5W[136]	complete infusion within 24 h of preparation[136] **Refrigerate** diluted product if not used immediately after preparation; bring to RT prior to administration[136]	- do **NOT** mix with calcium containing solutions (e.g., Lactated Ringer's)[136]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Zoledronic acid 4 mg/5 mL (MDA) (RT) no preservative[137]	N/A	0.8 mg/mL[137]	discard unused portion[137]	100 mL **NS**, D5W[137]	complete infusion within 24 h of preparation[137] **Refrigerate** diluted product if not used immediately after preparation; bring to RT prior to administration[137]	- do **NOT** mix with calcium containing solutions[137]
Zoledronic acid (ZOMETA) 4 mg/ 5 mL (Novartis) (RT) no preservative[138]	N/A	0.8 mg/mL[138]	discard unused portion[39]	100 mL **NS,** D5W[138]	complete infusion within 24 h of preparation[138] **Refrigerate** diluted product if not used immediately after preparation; bring to RT prior to administration[138]	- do NOT mix with calcium containing solutions[138]

Activation Date: 2 March 2006
Revised Date: 1 September 2019

BC CANCER CHEMOTHERAPY PREPARATION AND STABILITY CHART						
DRUG & STRENGTH (Storage Prior to Use, Manufacturer, Preservative Status)	**Reconstitute With:**	**To Give:**	**Vial Stability**	**Product**	**Product Stability**	**Special Precautions/Notes**
Zoledronic acid 4 mg/5 mL (Sandoz) (RT) no preservative[139]	N/A	0.8 mg/mL[139]	discard unused portion[139]	100 ml **NS**, D5W[139]	complete infusion within 24 h of preparation[139] Refrigerate diluted product if not used immediately after preparation; bring to RT prior to administration[139]	- do NOT mix with calcium- or other divalent cation-containing infusion solutions (e.g., Lactated Ringer's)[139]

* Suggested volume based on usual dose range and any concentration range of stability data
** Protect from light means minimizing exposure to direct sunlight over a *storage* period. More specific information on protection from light (eg, protecting container and tubing during *administration*) will be indicated in the Under the Special Precautions/Notes column.
*** Contains DMA (N,N dimethylacetamide). Product may be incompatible with closed system transfer devices such as ChemoLock.

Centres are not to change the content locally but should forward suggestions to the Cancer Drug Manual staff.

Explanatory Notes:

- *Stability data* assumes products prepared using standard aseptic technique in biological safety cabinet at low risk for contamination according to the classification outlined in USP 797.[140,141]
- *Vial stability*: Stability of solution after first puncture or reconstituted solution.
- *Storage temperature:* If information states same stability with refrigerator and room temperature storage, then fridge stability is bolded as preferred (ie, to minimize growth of micro-organisms).
- *Discard unused portion*: Unused portion from single use vials should be discarded at the end of the day.
- *"overfill known"* is stated if the manufacturer states overfill that is present is within acceptable limits.
- *"Complete administration within __"* is stated if the manufacturer specifies that the infusion must be completed in a specific time frame following preparation, usually including entire time required for preparation (from first puncture), storage, and administration of infusion.

Activation Date: 2 March 2006
Revised Date: 1 September 2019

Abbreviations:

BWI = bacteriostatic water for injection
CIVI: ambulatory pump = Continuous Intravenous Infusion (e.g., elastomeric infusor)
D5W = dextrose 5% in water
DMA = N,N dimethylacetamide
F = refrigerate
Non-DEHP = not containing Di(2-ethylhexyl) phthalate (DEHP)
NS = normal saline
PFL = protect from light
RT = room temperature
SWI = sterile water for injection

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