

# User's Guide to the BC Cancer Agency Chemotherapy Preparation and Stability Chart©

The chart provides the basic information on preparation and stability of parenteral antineoplastic drugs on the current purchasing contract of the BC Cancer Agency.<sup>1</sup> Information on other Canadian brands may be included as necessary (e.g., frequent change in contracted brands) or in the BC Cancer Agency Cancer Drug Manual©. Details on the drug administration are described in the Manual and the BC Cancer Agency Cancer Chemotherapy Protocols©.

## General

Stability data assume products prepared using standard aseptic technique in biological safety cabinet at low risk for contamination according to the classification outlined in USP 797.<sup>2,3</sup> In general, stability data from different brands (see appendix for cross-reference of different brands) are not used interchangeably since stability depends on formulations, ingredients, manufacturing processes and packaging. This principle is consistent with Health Canada's requirement for independent stability data from generic manufacturers.

If information states same stability with refrigerator and room temperature storage, then refrigerated is preferred (bolded). When normal saline is an option, it is preferred, and will be listed first and bolded.

## Vial Stability

The following will apply to original vial stability as long as it is chemically and physically stable<sup>4</sup>:

1. With preservative: maximum 14 days.
2. With no preservative: maximum of 2 days.

Unused portion from single use vials are assumed to be discarded at the end of the day. Multidose vials dispensed for in-hospital use should be discarded after a maximum of 14 days after first puncture, assuming that chemical stability of  $\geq 14$  days has been established. This "cap" in expiry date does not apply to multidose vials dispensed for patients to take home; in this case, the maximum expiry date is whatever that has been established by the manufacturer.<sup>5</sup>

## Intrathecal (IT) Administration

A separate row of information will be created for drugs given by the intrathecal route. To avoid confusion, sometimes only one particular vial strength (e.g., methotrexate 50 mg/2 mL) is listed even though other strengths (e.g., 20 mg/2 mL) are available.

## Expiry Date of Final Product

It is assumed that the sterile compounding is at low risk for contamination per USP 797 classification.<sup>3,6</sup> Therefore, maximum storage period before administration is **48 hours when stored at room temperature, or 14 days when refrigerated.**<sup>6</sup>

For fluorouracil ambulatory pumps, an expiry of 8 days is extrapolated from stability data at 7 days<sup>7</sup> and from other brands,<sup>8</sup> as well as per USP 1206. This states that sterile products prepared for multi-day home use administered by a portable infusion pump or reservoir should be started promptly after preparation, and administration should be completed within 7 days.<sup>9</sup>

For products described to be used immediately by the manufacturer, an arbitrary expiry of 4 hours from initial puncture or reconstitution is assigned. Storage conditions (i.e., refrigerated, room temperature) may be omitted.

## Infusion Volume and Stability

If there is no standard information, volumes are suggested based on usual dose range and any concentration range of the stability data.

1. If infusion fluid and stability are specified, it is assumed that stability is relatively independent of the concentration and the volume. Hence, commonly used mini-bag volumes (e.g., 100 mL, 250 mL) are reasonable.
2. If infusion fluid is specified but no corresponding stability is stated, the final product should be used immediately.
3. If a product monograph provides a specific concentration without stating if it is an upper or lower limit of dilution, it is assumed to be
  - a. the upper limit if a drug cannot be given without dilution or known to precipitate/degrade at concentration higher than that specified in the monograph
  - b. the lower limit if a drug can be given without dilution or known to degrade at concentration lower than specified in the monograph.

If an expiry date is not specified whether it is for mini-bag or syringe products, it is assumed that it can be applied to both types of products.

#### Stability of Syringe Preparations

When there is no information to correlate stability of syringe preparations, the following is used:

1. stability of original vial after puncture for liquid formulation,
2. stability of reconstituted solution for reconstituted formulation.

#### Storage

Special storage requirements for vials and finished products (eg, refrigerate, protect from light, etc.) are stated in the appropriate column related to the original vial, punctured or reconstituted vial, and final product. Unless otherwise specified, "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 Special Precautions/Notes column.

#### Latex content

This information is not included as it will be prepared by the BC Cancer Agency regional centre's pharmacy when the need arises for a particular patient. This is to maintain the currency of the information which depends on changes of manufacturing processes.

### **References**

1. BC Cancer Agency. Pharmacy Policy Number II-20: Guiding Principles for Chemotherapy Preparation Chart. Vancouver, British Columbia: BC Cancer Agency; 19 September 2007.
2. United States Pharmacopeia (USP). (797) Pharmaceutical compounding - sterile preparations. USP 27-NF 22. Rockville, Maryland: UPS Convention, Inc.; 2004.
3. Kastango ES. The ASHP discussion guide for compounding sterile preparations. Bethesda (MD): American Society of Health-System Pharmacists, Inc.; 2004. p. 5.
4. B.C. Cancer Agency - Vancouver Cancer Centre. Site Directive VIII-A-60: Expiry of vials after puncture. Vancouver, British Columbia: BC Cancer Agency; 17 April 1991.
5. B.C. Cancer Agency Provincial Pharmacy Professional Practice Council. Council meeting minutes. Vancouver, British Columbia: BC Cancer Agency; 7 December 2005.
6. United States Pharmacopeia (USP). (797) Pharmaceutical compounding - sterile preparations. USP 27-NF 22. Rockville, Maryland: UPS Convention, Inc.; 2004. p. 2369.
7. Stiles ML, Allen Jr LV, Tu YH. Stability of fluorouracil administered through four portable infusion pumps. American Journal of Hospital Pharmacy 1989;46(10):2036-40.
8. Trissel LA. Handbook on Injectable Drugs. 13th ed. Bethesda, MD: American Society of Health-System Pharmacists, Inc.; 2005.
9. United States Pharmacopeia (USP). (1206) Sterile drug products for home use. USP 26-NF 21. Rockville, Maryland: UPS Convention, Inc.; 2003. p. 2417-8, 526-7.

## Appendix. Cross-index of some pharmaceutical manufacturers

1. <b>Abraxis</b>	26. Mayne Pharma – see Hospira
2. Adria – see Pfizer	27. <b>Novartis</b>
3. Astra – see AstraZeneca	28. <b>Ovation Pharmaceuticals</b>
4. <b>AstraZeneca</b>	29. <b>Pfizer</b>
5. Aventis – see Sanofi-Aventis	30. Pharmacia – see Pfizer
6. <b>Bayer</b>	31. Pharmacia & Upjohn – see Pfizer
7. Berlex – see Bayer	32. Plough – see Schering Plough
8. BMS – see Bristol-Myers Squibb	33. Pharmaceutical Partners of Canada – see PPC
9. Bristol-Myers – see Bristol-Myers Squibb	34. PPC –see Abraxis
10. <b>Bristol-Myers Squibb</b>	35. Rhone-Poulenc Rorer – see Aventis
11. Burroughs Wellcome – see GlaxoSmithKline	36. Rhone-Poulenc Rorer – see Sanofi-Aventis
12. Ciba – see Novartis	37. <b>Roche</b>
13. Ciba-Geigy – see Novartis	38. Roche Oncology Canada – see Roche
14. <b>Eli Lilly</b>	39. Sandoz – see Novartis
15. Faulding – see Mayne Pharma	40. <b>Sanofi-Aventis</b>
16. Geigy – see Novartis	41. Sanofi-Synthelabo – see Sanofi-Aventis
17. Glaxo – see GlaxoSmithKline	42. Schering – see Schering Plough
18. <b>GlaxoSmithKline</b>	43. <b>Schering Plough</b>
19. GlaxoWellcome – see GlaxoSmithKline	44. Searle (Monsanto) – see Pfizer
20. GSK – see GlaxoSmithKline	45. SmithKline Beecham – see GlaxoSmithKline
21. Hoescht-Marion Roussel – see Aventis	46. SmithKline Beecham = SmithKline & French + Beecham Pharmaceuticals
22. Hoescht-Marion Roussel – see Sanofi-Aventis	47. Squibb – Bristol-Myers Squibb
23. Hoffmann-La Roche – see Roche	48. Upjohn – see Pfizer
24. <b>Hospira</b>	49. Zeneca – see AstraZeneca
25. ICI – see AstraZeneca	