

Volume Maximums

1. How much solution should be withdrawn from a bag before adding a hazardous drug?

The volume to be withdrawn from a bag depends on the original bag size and the volume of drug that is to be added. Solution bags are quite flexible and allow fairly large volumes to be added without difficulty. The intention of prior withdrawal is to ensure that the final volume of the bag is not so large that administration is difficult and that there is no risk of the bag rupturing. If the volume of drug to be added is small enough, no prior withdrawal is required.

The table below provides an example of guidelines for determining the volume to be withdrawn from a bag prior to adding hazardous drug.

Original Bag Volume	Maximum Volume Addition Permitted Without Withdrawal	Maximum Final Volume Permitted	Maximum Final Volume Permitted (if you factor in overfill volume)
25 mL	25 mL (100%)	50 mL	55 mL (overfill = 5 mL)
50 mL	25 mL (50%)	75 mL	80 mL (overfill = 5 mL)
100 mL	50 mL (50%)	150 mL	160 mL (overfill = 10 mL)
250 mL	50 mL (20%)	300 mL	325 mL (overfill = 25 mL)
500 mL (Braun)	50 mL (10%)	550 mL	575 mL (overfill = 25 mL)
500ml (Baxter)	50 mL (10%)	550 mL	600 mL (overfill = 50 mL)
1000 mL	100 mL (10%)	1100 mL	1150 mL (overfill = 50 mL)

If the drug volume to be added exceeds the maximum volume addition permitted without withdrawal, as listed above, the difference will be withdrawn. For example, the maximum

volume that can be added to a 250 mL bag is 50 mL. To add 70ml of riTUXimab (700mg), remove 20ml of NS from the bag first.

Here is another option to consider for adding large volumes of drugs to a bag:

Bag Size	Drain Bag When
250 mL	Greater than 85 mL: drain 250 mL from 500 mL bag
500 mL	Greater than 85 mL: drain 500 mL from 1000 mL bag
1000 mL	Greater than 110 mL: put into empty 2000 mL bag

2. What is the maximum volume that a syringe can be filled with a hazardous drug?

During the entire sterile compounding process, syringes should only be filled to a maximum of 75% volume with hazardous drug. This is to minimize the risk of the plunger accidentally separating from the syringe barrel and causing a hazardous drug spill.

SYRINGE	MAXIMUM HAZARDOUS DRUG VOLUME (3/4 full)
1 mL	0.75 mL
3 mL	2.25 mL
5 mL	3.75 mL
6 mL	4.5 mL
10 mL	7.5 mL
12 mL	9 mL
20 mL	15 mL
30 mL	22.5 mL
35 mL	26 mL
50 mL	37.5 mL
60 mL	45 mL

Reviewed: February 5, 2020