

Y-Site Compatibility of Intravenous Drugs with Plasmalyte 148

This study was designed to assess the physical compatibility of Plasma-Lyte 148 by simulation of y-site injection of selected drugs with the solution. The range selected was based on the commonly used drugs in the operating theatre and critical care settings.

Method

The selected drugs were diluted to concentrations that are commonly used in an acute care setting.

Six (6) diluted drug samples were prepared at the specified concentration and tested by combining 10ml of diluted drug solution with 10ml of Plasma-Lyte 148 in a test tube at the following intervals (within ± 15 minutes):

- Immediately after mixing (2 samples)
- 1hr after mixing (2 samples)
- 4hrs after mixing (samples stored at 23°C; 2 samples)

Blank solutions containing just diluent and Plasma-Lyte 148 were also prepared as a control, or if there was no diluent required, neat Plasma-Lyte 148 was used as control.

Test solutions were examined under normal diffuse laboratory lighting, and were also tested for turbidity*

**The turbidity of Plasma-Lyte 148 and diluent control solutions was determined to be in the range of 0.07-0.12 NTU. The turbidity results observed for the Plasma-Lyte 148 and medication test solutions were taken as observed results i.e. without the Plasma-Lyte 148 or diluent being subtracted.*

Results

Testing was conducted with a total of 87 different drugs. Of these, 77 showed the mixture to be a clear and colourless liquid, and six (6) demonstrated a slightly yellow to yellow colour. Four (4) drugs displayed some immediate visual appearance changes upon mixing with Plasma-Lyte 148:

- Amiodarone
- Cyclosporin
- Mycophenolate Mofetil
- Propofol**

There was no change in appearance from the immediate mixing observations to the 4 hour point at the end of the study for all 87 medications.

Turbidity results were consistent with appearance of solution data except for Amiodarone, where a foam was observed to form at the top of the solution (this did not affect turbidity).

Conclusion

Based on both appearance and turbidity testing conducted, 83 of the 87 drugs tested appeared to be compatible with Plasma-Lyte 148 solution following mixing via y-site.

Please refer to the table below for a full list of drugs tested which appeared to be physically compatible.

Please Note: This data is internal data 'on file' which has not been published in a peer-reviewed journal. Stability data is specific to the medications tested and to the manufacturer and must not be extrapolated to any other drug formulations. Since the specific manufacturer's country of Marketing Authorisation (i.e. the country that the drug is licensed in) is not listed in the report, this data should serve as guidance only and should not be regarded as a clinical recommendation. Users should refer to the drug manufacturers Summary of Product Characteristics for further information.

***** Propofol demonstrated no visible change or separation of the solution after mixing. However as a milky-white substance it is difficult to draw any conclusions based on visual inspection or turbidity testing alone.***

Drug Tested	Manufacturer	Drug concentration tested	Compatible
Aciclovir	Hospira	25 mg/ml	Yes
Adrenaline	Aspen	0.12 mg/ml	Yes
Amikacin	DBL	40 mg/ml	Yes
Atracurium	DBL	0.5 mg/ml	Yes
Atropine	Pfizer	0.4 mg/ml	Yes
Benzylpenicillin	CSL	48 mg/ml	Yes
Calcium Chloride	Baxter	40 mg/ml	Yes
Calcium Gluconate	Baxter	40 mg/ml	Yes
Caspofungin	MSD	0.7 mg/ml	Yes
Cefoxitin	Hospira	20 mg/ml	Yes
Ceftazidime	Hospira	100 mg/ml	Yes
Cephazolin	Hospira	40 mg/ml	Yes
Ciprofloxacin	Bayer	2 mg/ml	Yes
Clindamycin	Pfizer	18 mg/ml	Yes
Clonidine	BI	20 microgram/ml	Yes
Cloxacillin	Teva	100 mg/ml	Yes
Cyclophosphamide	Baxter	8 mg/ml	Yes
Dexamethasone	Aspen	4 mg/ml	Yes
Digoxin	Aspen	250 microgram/ml	Yes
Dobutamine	Hospira	5 mg/ml	Yes
Ephedrine	Hospira	5 mg/ml	Yes
Ergometrine	Hospira	40 microgram/ml	Yes
Esmolol	Phebra	10 mg/ml	Yes
Esomeprazole	AZ	0.4 mg/ml	Yes
Fentanyl	Hospira	10 microgram/ml	Yes
Flucloxacillin	Hospira	40 mg/ml	Yes
Fluconazole	Pfizer	2 mg/ml	Yes
Foscarnet	Clinect	24 mg/ml	Yes
Frusemide	Sandoz	10 mg/ml	Yes
Gentamicin	Pfizer	10 mg/ml	Yes
Glyceryl Trinitrate	Hospira	0.6 mg/ml	Yes
Glycopyrrolate	Aspen	0.2 mg/ml	Yes
Granisestron	Hospira	0.05 mg/ml	Yes
Heparin	Pfizer	1000 units/ml	Yes
Hydralazine	LINK	2 mg/ml	Yes
Hydrocortisone	Pfizer	50 mg/ml	Yes
Hydromorphone	Mundipharma	2 mg/ml	Yes
Imipenem/ Cilastatin	MSD	5 mg/ml	Yes
Isoprenaline	Hospira	0.01 mg/ml	Yes
Ketamine	Hospira	2 mg/ml	Yes
Labetalol	Sandoz Canada	5 mg/ml	Yes
Lignocaine HCl	Pfizer	8 mg/ml	Yes
Lincomycin	Pfizer	2 mg/ml	Yes
Magnesium Sulfate	Baxter	0.4 mmol/ml	Yes
Meropenem	Hospira	40 mg/ml	Yes
Metaraminol	Montrose	0.2 mg/ml	Yes
Metoclopramide	I Nova	5 mg/ml	Yes
Metoprolol	AZ	1 mg/ml	Yes
Metronidazole	Hospira	5 mg/ml	Yes
Midazolam	Pfizer	1 mg/ml	Yes
Milrinone	Sanofi	300 microgram/ml	Yes
Morphine Sulfate	Hospira	1 mg/ml	Yes
Moxifloxacin	Bayer	1.6 mg/ml	Yes
Naloxone	Hospira	0.4 mg/ml	Yes
Neostigmine	AZ	0.5 mg/ml	Yes
Noradrenaline	Hospira	0.16 mg/ml	Yes
NovoRapid Insulin	Novo Nordisk	1 unit/ml	Yes
Ondansetron	GSK	1 mg/ml	Yes
Oxytocin	Aspen	1 unit/ml	Yes

Supplied upon request only

Ref: Plasmalyte148_0003_SRL_y-site compatibility (May 2017)
 Compatibility testing of selected drug medications with Plasma-Lyte Solution
 IDT Australia Limited. Summary Report REP0880

Drug Tested	Manufacturer	Drug concentration tested	Compatible
Pancuronium	AZ	2 mg/ml	Yes
Pantoprazole	Sandoz	800 microgram/ml	Yes
Paracetamol	Pfizer	10 mg/ml	Yes
Parecoxib	Pfizer	20 mg/ml	Yes
Pethidine	Hospira	10 mg/ml	Yes
Phenytoin	Hospira	50 mg/ml	Yes
Piperacillin/ Tazobactam	Pfizer	90 mg/ml	Yes
Potassium Chloride	Baxter	0.5 mmol/ml	Yes
Potassium Dihydrogen Phosphate	Baxter	0.5 mmol/ml	Yes
Protamine	Sanofi	10 mg/ml	Yes
Rocuronium	Hospira	10 mg/ml	Yes
Salbutamol	GSK	0.05 mg/ml	Yes
Sodium Nitroprusside	Hospira	0.6 mg/ml	Yes
Suggamadex	MSD	25 mg/ml	Yes
Syntometrine	Novartis	1 mg / 4 ml	Yes
Thiopentone	Link	50 mg/ml	Yes
Tramadol	Sandoz	50 mg/ml	Yes
Tranexamic Acid	Pfizer	100 mg/ml	Yes
Trimethoprim/ Sulfamethoxazole	Hospira	0.04 mg/ml	Yes
Vancomycin	Hospira	20 mg/ml	Yes
Verapamil	Abbott	2.5 mg/ml	Yes
Voriconazole	Pfizer	5 mg/ml	Yes