

## PUMPSIL-D

**NEW**

Pumpsil-D precision dispensing elements

Pumpsil-D exceeds the accuracy, precision and durability of peroxide-cured silicone tubing – with no contaminants such as 2,4 dichlorobenzoyl acid. Pumpsil-D is perfect for use in pharmaceutical and biotechnology processes.

- Higher accuracy
- Higher precision
- High purity levels and clarity; low leachables
- Ultra-smooth bore to control protein binding and bacterial growth
- Full biopharm certification - USP Class VI, ISO10993

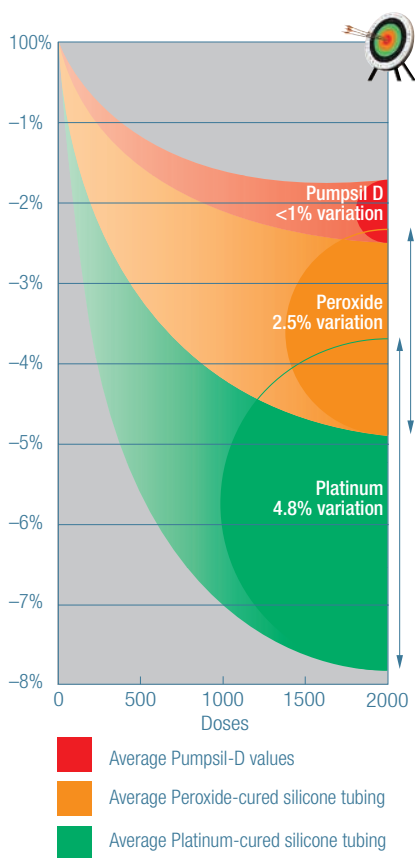
With *LaserTraceability™*



## When accuracy matters ...

Not all silicone tubing is alike. Pumpsil-D is a platinum-cured silicone tubing we have developed for use with Watson-Marlow high-accuracy dispensing pumps. It has a superior flex memory, which doubles the accuracy of dispensed volumes compared to standard platinum-cured silicone tubing.

Platinum-cured silicone tubing, like all others, fatigues over time. As a result, its performance deteriorates and recalibration is necessary. Pumpsil-D's greater resistance to fatigue stress means that fewer calibrations are needed, cutting downtime and maximising process efficiency.



Different manufacturers use different raw materials and production processes. There can be big variations between different brands and between batches from the same manufacturer. At Watson-Marlow we strictly control our production process to eliminate these variations.

The graph, left, shows how the average accuracy of 8.0mm bore tubing decreased as the tubing fatigued in four test runs of 2,000 dispensed shots (no recalibration was done). Pumpsil-D showed an average loss of 2% in accuracy after 2,000 doses.

The graph also reveals how precise different tubings are: their consistency in maintaining their accuracy. The size of each semi-circle shows the variation our tests found between four different pieces of identical tubing. With Pumpsil-D, this potential variation is minimised, again reducing the requirement for re-calibration and maximising efficiency.

Pumpsil-D is formulated to maintain the highest accuracy when dispensing.

Pumpsil-D platinum-cured silicone tubing element part numbers

Bore mm	Wall thickness mm	Tubing number	Product code
0.5	2.4		913.DE05.K24
0.8	2.4		913.DE08.K24
1.6	2.4	119	913.DE16.K24
3.2	2.4	120	913.DE32.K24
4.8	2.4	15	913.DE48.K24
6.4	2.4	24	913.DE64.K24
8.0	2.4	121	913.DE80.K24
9.6	2.4	122	913.DE96.K24
8.0	4.0	185	913.DE80.K24
12.0	4.0	186	913.D12E.K40
16.0	4.0	187	913.D16E.K40

## LaserTraceability™

Traceability is fundamental in the biotechnology and pharmaceutical industries, where validated processes must be demonstrated. Every piece of Pumpsil-D tubing is permanently laser-etched, end-to-end, with part number, lot number and use-by date: Pumpsil-D tubing offers full traceability.

Laser coding produces an indelible print which uses no ink and has no effect on tubing performance.



Unlike some manufacturers, we postcure all Watson-Marlow platinum-cured silicone to remove linear and cyclic siloxanes, which can leach out of other platinum-cured tubings and contaminate bio-pharmaceutical applications. This impurity can be measured as Total Organic Carbon (TOC). Pumpsil-D has a TOC figure approaching zero: (TOC (NPOC) 9.04mg C/l).

Another major benefit of the postcure process is that it increases the cross-linking between molecules. The result is tighter molecular bonds which maximise resistance to flexing stress. The tubing's shape-memory is improved: it is springier and fatigues more slowly. It retains its original shape for longer and dispensed volumes remain accurate for longer.

## Our most accurate silicone tubing ever

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**WARNING** These products are not designed for use in, and should not be used for, patient connected applications.

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