



# Preparing and Dispensing Oral Liquids

A Time Study for

MPI's Auto-Wrap™ Syringe Labeling System

**Marc R. Summerfield, MS**  
**President, Summerfield Consulting**  
**[summsum@verizon.net](mailto:summsum@verizon.net)**

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## Time Study for MPI's Auto-Wrap™ Syringe Labeling System

### Summary:

A time study was conducted to determine and quantify the some of the factors involved in using the Auto-Wrap®.

The following trials were conducted:

Trial Number	Automation or Manual?	Syringe volume	Number of Syringes/Run	Number of Runs/Trial	Label type	Average Time per Trial/25 syringes (Min)	Average Time per Trial/25 syringes (Sec)
1	Manual	1ml	25	5	Straight	3'07"	187"
2	Manual	1ml	25	5	Folded	4'14"	254"
3	Automation	1ml	25	5	Auto	1'32"	92"
4	Manual	5ml	25	5	Straight	2'55"	175"
5	Manual	5ml	25	5	Folded	3'51"	231"
6	Automation	5ml	25	5	Auto	1'31"	91"
7	Automation	5ml	50	5	Auto	3'08"	188"

Syringe Size	Manual/25 Syringes Straight	Manual/25 Syringes Folded	Automated	Time Savings Automated vs. Straight Per 25	Time Savings Automated vs. Folded Per 25
1ml	3'07" (187")	4'14" (254")	1'32" (92")	1'35" (95")	2'42" (162")
5ml	2'55" (175")	3'51" (231")	1'31" (91")	1'24" (84")	2'20" (140")

## Conclusions:

1. **Syringe size does not significantly alter the time consumed in the Auto-Wrap® process.** The difference between a run of 25 1ml (91") and 5ml (92") was not statistically significant.
2. **It takes approximately 33% (1/3) longer to manually label either size (1ml or 5ml) syringes with the folded versus the straight labels.** (Statistically significant).  
5ml: (231" folded versus 175" straight). 1ml: (254" folded versus 187" straight).
3. **Syringe size does not significantly alter the time consumed to label with the straight labels (1ml versus 5ml) but does slightly increase the amount of time required to label the 1ml syringes for the folded labels.**
4. **Straight Labeling: Automated (Auto-Wrap®) saves approximately 1.5 minutes (90") per run of 25 syringes regardless of syringe size compared with straight labeling.** (Statistically significant). Note: the difference (95" and 84") was not statistically different, so an average (90") is a reasonable standard.
5. **Folded Labeling: Automated (Auto-Wrap®) saves approximately 2-1/3 minutes (5ml) to 2-2/3 minutes (1ml) per run of 25 syringes compared with folded labeling.** (Statistically significant). Note: folded labeling for 1ml consumes more time than straight labeling, so automated time savings is greater.
6. **An automated run of 50 syringes consumes twice the time as an automated run of 25.** The difference was **not** statistically significant. Note: any multiple of 25 will consume approximately that multiple of the 25 syringe time standard (90 seconds; 1.5 minutes).

7. Automated runs of multiples of 25 syringes will save that multiple of the calculated savings for a batch of 25 syringes:

<b>Key Metrics</b>	<b>Time Savings per 25 Syringes</b>
<b>Straight labeling</b> (regardless of syringe size)	<b>1-1/2 minutes</b>
<b>Folded labeling</b> (1ml syringe)	<b>2-2/3 minutes</b>
<b>Folded labeling</b> (5ml syringe and higher)	<b>2-1/3 minutes</b>

**For more information, contact Marc Summerfield, MS  
President – Summerfield Consulting  
summsum@ verizon.net**