

# Swifter, Greener Sample Prep

New Supel™ Swift HLB – DPX Tips

## What's New

- Minimal elution solvent volumes
- Rapid extraction times
- High extraction efficiencies
- Easy to perform extractions – pipetting up and down at every step
- Higher throughput automation compatible with Hamilton<sup>®</sup> Liquid Handling Systems
- Microelution size for small volume applications

## Supel™ Swift HLB – DPX Tip Workflow Method

**Condition: 750  $\mu$ L 5% methanol solution  
aspirate 3 times**

**Bind: 300  $\mu$ L sample solution  
aspirate 4 times**

**Wash: 400  $\mu$ L 5% methanol solution  
aspirate 3 times**

**Elution: 300  $\mu$ L 5% formic acid in methanol  
aspirate 2 times**

**Dilute: 150  $\mu$ L elution with 350  $\mu$ L water**

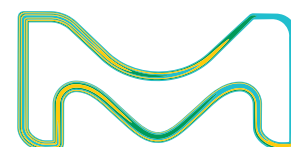


## Supel™ Swift HLB – DPX Tips

Supel™ Swift HLB SPE is a new, proprietary, and patent pending copolymer having both hydrophilic and lipophilic functional groups. It is intended for use as a sorbent material in solid phase extractions (SPE) prior to instrumental analysis, such as LC-MS/MS. The dual polarity of Supel™ Swift HLB makes it ideal for extracting a broad range of compounds from aqueous matrices and is appropriate for samples in food & environmental applications as well as biological samples such as urine, serum, and plasma.

The hydrophilic and lipophilic balance (HLB) property of the polymer material enables the retention of a broad spectrum of compounds having a wide range of polarities and log P values.

The DPX tip format is ideal for high throughput automation workflows and is a rapid, greener solution that delivers an efficient, easy-to-use sample prep solution.



# The Use of Supel™ Swift HLB – DPX Tips and Hamilton® Robot for Extraction of Opioid Drugs from Urine

In our application, the Supel™ Swift HLB DPX Tips were used to extract 13 opioid drugs from urine using a Hamilton® STARlet automation platform for cleanup followed by LC-MS/MS analysis. The automated extraction method can process multiple samples simultaneously in under 10 minutes thereby minimizing within-run sample variability and maximizing throughput.

Analyte	Internal Standard	N	Recovery (%)	RSD (%)
morphine	oxymorphone-D3	8	106.8	7.8
oxymorphone	oxymorphone-D3	8	93.8	9.3
hydromorphone	oxymorphone-D3	8	111.3	6.1
naloxone	oxycodone-D3	8	87.4	7.9
codeine	oxycodone-D3	8	78.2	7.3
oxycodone	oxycodone-D3	8	102.5	6.8
naltrexone	oxycodone-D3	8	91.2	7.0
hydrocodone	hydrocodone-D3	8	93.3	11.2
tramadol	tramadol-D3	8	101.4	2.4
meperidine	meperidine-D4	8	97.9	4.7
fentanyl	meperidine-D4	8	104.2	4.2
buprenorphine	meperidine-D4	8	84.7	3.0
methadone	methadone-D9	8	98.9	4.4

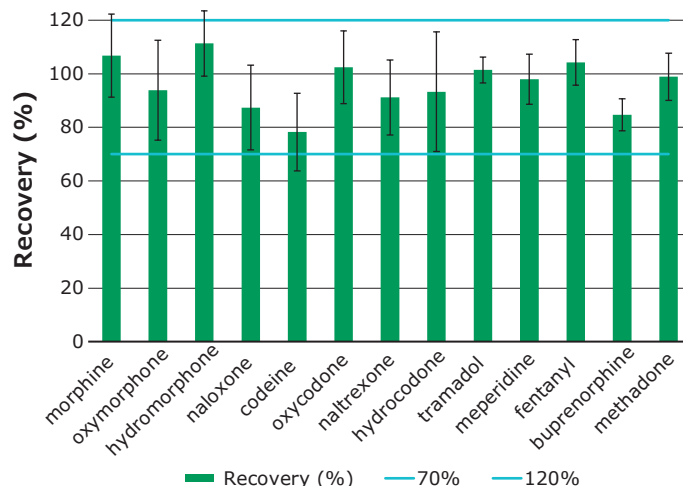
**Table 1.** Analyte recovery

Good recovery values were achieved for all compounds between 84-111%. Relative Standard Deviations (%RSDs) were calculated using 8 replicate extractions and were under 11.2% for all compounds.

This DPX HLB method can process multiple samples in under 10 minutes allowing for a fast, automated, and high throughput workflow. The method is robust, linear, and provides the necessary sensitivity to meet most laboratories' needs.

Our other SPE tip offerings include HybridSPE DPX tips for rapid phospholipid removal from biological matrices.

See our complete list of DPX Tips offerings at [SigmaAldrich.com/dpx](https://www.sigmaaldrich.com/dpx)



**Figure 1.** Percent recovery for opioid compounds

Description	Part Number
Supel™ Swift HLB - DPX Tips 5 mg Hamilton® 1 mL	52984-U
Supel™ Swift HLB - DPX Tips 5 mg Universal 1 mL	52989-U
Supel™ Swift HLB - DPX Tips 10 mg Hamilton® 1 mL	52992-U
Supel™ Swift HLB - DPX Tips 10 mg Universal 1 mL	52995-U
Supel™ Swift HLB - DPX Tips 20 mg Hamilton® 1 mL	52997-U
Supel™ Swift HLB - DPX Tips 20 mg Universal 1 mL	52999-U
Supel™ Swift HLB - DPX Tips 3 mg Hamilton® Microelution 300 µL	53001-U



#### To place an order or receive technical assistance

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