

CNSI Microfluidics Laser Cutting Data

Material Vendors

Acrylic sheet, optically clear, from McMaster Carr: part number 8560K239
<http://www.mcmaster.com/#catalog/119/3558/=molz4w>

Cutting Parameters

Acrylic Sheet

Cutting 1/8", 100% power, 0.4 ipm, 2000 Hz, (Dave Bothman, 5/5/13 - clean cut)

Cutting 1/4", 100% power, 0.15 ipm, 1000 Hz, z offset -.125, (Dave Bothman, 5/5/13 - clean cut)

PDMS

250um PDMS with mylar backing on back side and removed from front

Cutting 42% power, 2.0 ips, 5000Hz (Peter Mage, 5/9/13 - some flash and soot - recipe needs to be refined)

Double Sticky Tape

25% power, 3 ips

Gore Teflon Foam 1/16" 15% power, 0.5% speed, 1000 Hz (DB 7/9/15)

Silicone Rubber sheet, 1/8" 100% power, 0.1% speed, 2000 Hz - use Nitrogen gas (DB 7/9/15)

Guideline Cutting Recipes

Acrylic

1. 1/8 acrylic

| | Color | Power | Speed | PPI/Hz | Passes | Air Assist | Correction | Z-Offset |
|----------------|-------|-------|-------|--------|--------|------------|------------|----------|
| Engrave | Black | 25 | 20 | PPI | - | on | 0 | 0 |

| | Color | Power | Speed | PPI/Hz | Passes | Air Assist | Correction | Z-Offset |
|------------|-------|-------|-------|--------|--------|------------|------------|----------|
| Cut | Red | 25 | 0.4 | Hz | 1 | on | 10 | 0 |
| Cut | Blue | 100 | 0.4 | PPI | 1 | on | 10 | 0 |

-1/10 acrylic

| | Color | Power | Speed | PPI/Hz | Passes | Air Assist | Correction | Z-Offset |
|-------------|-------|-------|-------|--------|--------|------------|------------|----------|
| Skip | Black | - | - | - | - | on | - | - |
| Cut | Red | 2 | 0.1 | Hz | 1 | Hz | 1 | 0 |
| Cut | Blue | 15 | 0.5 | Hz | 5 | Gas 1 | 0 | 0 |

| | Color | Power | Speed | PPI/Hz | Passes | Air Assist | Correction | Z-Offset |
|----------------|----------------------|-------------|-------|--------|--------|------------|------------|----------|
| Engrave | Row 1 Col 2 | Row 1 Col 3 | | | | | | |
| Cut | no colspan this time | | | | | | | |
| Cut | Row 2 Col 2 | Row 2 Col 3 | | | | | | |

- Recipes from Vincent

| | Heading 1 | Heading 2 |
|------------------|----------------------|-------------|
| Heading 3 | Row 1 Col 2 | Row 1 Col 3 |
| Heading 4 | no colspan this time | |
| Heading 5 | Row 2 Col 2 | Row 2 Col 3 |

- Recipes from Rachel

| | Heading 1 | Heading 2 |
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| Heading 3 | Row 1 Col 2 | Row 1 Col 3 |
| Heading 4 | no colspan this time | |
| Heading 5 | Row 2 Col 2 | Row 2 Col 3 |

- Recipes from Ola

| | Heading 1 | Heading 2 |
|------------------|----------------------|-------------|
| Heading 3 | Row 1 Col 2 | Row 1 Col 3 |
| Heading 4 | no colspan this time | |
| Heading 5 | Row 2 Col 2 | Row 2 Col 3 |

- Recipes from Beach

Scribing microscope slides for breaking Dave Bothman - 16 Dec. 2015 Recipe: 100% power, 3% speed, 1000 Hz, 1 pass Focus on top of slide Place a paper towel wetted with water on glass in area to be cut Cut through the paper Break on scribed line

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