Electrospraying/Electrospinning equipment in 66-353

SAFETY SLIDES
Overview of electrospinning apparatus
Safety Slides – High voltage electrical equipment

Maximum voltage ~ 40,000 V

Low current discharge

Rubber Mat prevents any accidental shorting

Do not open case while plugged! Unplug in case of power loss
Collecting plate

- Grounded conducting plate
- Insulated from fume hood
- Asahiklin AK-225 is non-flammable
- Electrospinning/spraying of other hazardous solvents in fume hood
Nozzle, high voltage clip

- Alligator clip connected to high voltage output
- The plate is isolated from lab stand and fume hood
- Care when using flammable solvents
- Wear long-sleeved labcoat/safety googles while operating
**Risks from exposure to electrical current**

- major hazards associated with electricity are electrical shock and fire
- Wet skin has significantly less resistance (wear gloves!)
- The effect of the shock may range from a slight tingle to severe burns to cardiac arrest.

<table>
<thead>
<tr>
<th>Current</th>
<th>Reaction</th>
<th>Current drawn</th>
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</thead>
<tbody>
<tr>
<td>1 Milliampere</td>
<td>Perception level</td>
<td>~ 10-20</td>
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<tr>
<td>5 Milliamperes</td>
<td>Slight shock felt; not painful but disturbing</td>
<td>microamperes</td>
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<tr>
<td>6-30 Milliamperes</td>
<td>Painful shock; &quot;let-go&quot; range</td>
<td></td>
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<tr>
<td>50-150 Milliamperes</td>
<td>Extreme pain, respiratory arrest, severe muscular contraction</td>
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<tr>
<td>1000-4,300 Milliamperes</td>
<td>Ventricular fibrillation</td>
<td></td>
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<tr>
<td>10,000+ Milliamperes</td>
<td>Cardiac arrest, severe burns and probable death</td>
<td></td>
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Source: EHS