Labor Pilot High Shear Mixer  
Model: IKA® Labor Pilot 2000/4 (DR configuration)  

Location of Machine: Composites Lab, RFM 1218  

Location of SOP and Machine Operating & Safety Manual: Composites Lab website under resources; Composites Lab TRACS site; and Hardcopy near machine.  

Emergency Contact:  
- Call 911  
- Call EHS & Risk Management at 512-245-3616  
- Call Head Lab Technician, Dr. Ray Cook (office 512-245-2050)  
- Call Dr. Jitendra S Tate (office 512-245-4872)  

Before using this machine:  
- You must have permission from Dr. Tate.  
- You must have received formal training from technician or, trained research student (designated by Dr. Tate) related to machine safety and operation.  
- You must read and understand SOP and Machine Cleaning Manual.  
- You must use this machine under direct supervision of Dr. Tate or, Dr. Cook or, trained research student (designated by Dr. Tate).  
- You must have signed “Lab Rules” document with Dr. Tate. This document must be signed every semester fall, spring, and summer (as applicable).  
- If you do NOT follow above instructions you will be held responsible for your own safety and damages.  

Safety Precautions:  
Protective Equipment: Prior to performing this procedure, the following personal protective equipment must be obtained and ready for use: Gloves, Safety Goggles, Lab Coat.  

Important Safeguards:  

1. Prior to performing this procedure, the following safety equipment must be accessible and ready for use: (e.g. chemical fume hood, biological safety cabinet, laminar flow hood, chemical spill kits) Fume hood  
2. All liquids should be drained to containers for chemical disposal and properly marked.  
3. Do not run pure Acetone through machine because it can damage O-rings.  
4. In the event that a hazardous material spill during this procedure, be prepared to clean with cleaner according to MSDS of materials used.  

Specifications:  
- Power 1,5 kW  
- Output speed 3.160 - 13.750 min⁻¹  
- Flow capacity (H2O) approx. 300 - 700 l/h (depending on type of generator)
- Peripheral speed 9.4 - 41 m/s
- Voltage/frequency 3 x 380-420 V/50-60 Hz or 3 x 220-240 V/50-60 Hz
- Dimensions (LxWxH) 450 x 250 x 350 mm

IKA Labor Pilot 2000/4 DR in fume hood

General Information

IKA Labor Pilot is an all-purpose machine for Research and Developing. The mixer can be equipped with different modules. Our machine has DR configuration which has 3-stage disperser for applications with high shear requirements. It is also equipped with optional IKA-stirrer RW 28 basic. The unit is controlled by a controller with is mounted on the wall outside the fume hood.

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# High Shear Mixer Standard Operating Procedure

## Starting up:
- a. Plug in the cord outside the fume hood
- b. Turn on switch
- c. Adjust the speed (Frequency)

## Run water through the mixer to check leakage
- a. Put water in the hopper
- b. Push “Start” on the controller
- c. Adjust the frequency - “up”/“down” (Note: no recirculation under 40 Hz)
- d. Check for leakage

## Drain the water
- a. Open the 3-way valve
- b. Be careful: Fast current/High Pressure/High Temperature of the material
- c. Close valve after draining water

## Mixing
- a. Put material(s) into hopper
- b. Push “Start”
- c. Adjust the frequency - “up/down”

**Note:** make sure mixer does not exceed 60°C.
### Removing material(s) from the mixer
- a. Keep the motor running
- b. Place bicker under 3-way valve
- c. Carefully open the valve

### Turn off the motor
- a. Close the valve

### Cleaning of the Mixer
- b. Run cleaning agent through the mixer many times (Hot water/soap/diluted acetone/alcohol/etc).
- c. **Do not use pure acetone**
- d. Turn off the motor
- e. Close the valve