

# FastWoRX™-M Fast Start Guide

## ***FastWoRX – Forget the Separatory Funnel***

- Work-ups in half the time... or less
- Greener - up to 90% less solvent used
- No emulsion formation
- Run parallel samples
- Works at any scale – milligrams to kilograms
- Just a simple solid separation
- Minimize solvent exposure
- Reusable
- Easy automation

FastWoRX-M is a hydrophobic and magnetic black powder that absorbs most organics. Its average particle size is about 100 mesh. Its ability to be manipulated by a magnet opens many automation possibilities. FastWoRX-M powder eliminates the need for time- and solvent-consuming liquid-liquid extraction (LLE) and allows automation of processes that now use LLE.

FastWoRX-M absorbs most hydrophobic organic compounds with a molecular weight less than 1,000 (we believe it will absorb higher molecular weight compounds but have not done testing). Hydrophilic compounds will tend to remain in the aqueous phase. FastWoRX-M has been tested with many common solvents: EtOH, MeOH, dichloromethane, dichloroethane, chloroform, ethyl acetate, diethyl ether, THF, dioxane, acetone, hexane, benzene, toluene, acetic acid, DMF and DMSO.

Below is a general procedure for using FastWoRX-M powder based on Faster Chemistry's experiences. More details are available in the User Guide. Of course, every reaction is different and every chemist is creative so don't hesitate to try variations to get your reactions done faster than you thought possible!

**Please read the SDS before use. FastWoRX-M powder should not be used with strong acids (pH < 1) or bases (pH > 14), hydrofluoric acid or fluorides.**

### **General Procedure for Reaction Work-Up with FastWoRX-M Powder**

**Step 1: Conduct your reaction and quench with about 5 mL of water or brine per gram of organics.**

- If quenching of the reaction is not required, FastWoRX-M powder can be added directly to the sample (go to Step 2).
- If your products have appreciable water solubility, a saturated solution of a suitable salt such as NaCl or NH<sub>4</sub>Cl is recommended for quenching.
- If the reaction forms a solid or was done in a water-miscible solvent, an appropriate water-immiscible solvent should be added after quenching to dissolve the solids or form an immiscible organic phase.

**Step 2: Add 12 to 20 grams of FastWoRX-M powder per gram of organics to the quenched reaction mixture. Stir *vigorously* for about 1 minute.**

- The absorption of more polar/water-soluble compounds into FastWoRX can be improved by quenching with a saturated salt solution in Step 1.

### Step 3: Reduce the solvent volume.

- Use a rotavap or an air or inert gas sparge of the quenched reaction mixture containing the FastWoRX-M powder. Evaporate essentially all of solvent in this step – there should be no organic liquid visible in the mixture.

### Step 4: Separate the FastWoRX-M powder with a magnet or filter the FastWoRX-M powder. Wash the powder if needed.

- You can hold a strong permanent magnet at the bottom exterior of your glass reactor and simply decant the excess aqueous solution away from the retained powder with a pipette.
- For many reactions, you can go directly to Step 5 after separation. If residual reactants, salts, catalysts and/or by-products are a concern with your reaction, use water or acid or base solutions to wash them from the retained powder. If using acid or base washes, you can finish with water washes to remove any residual acid or base (the approximate volume of the wash solutions in mLs is numerically equal to one-half the weight in grams of FastWoRX-M powder added in Step 2).
- If a target compound is highly water-soluble, a minimal amount of a saturated NaCl or NH<sub>4</sub>Cl solution should be used for the wash step.
- You may also filter the FastWoRX-M powder out of the mixture. If you will be doing flash chromatography later, it is fastest and most efficient to use a dry loading cartridge as the filter (see the FastWoRX-S Guides for more details).

### Step 5: Dry the FastWoRX-M powder.

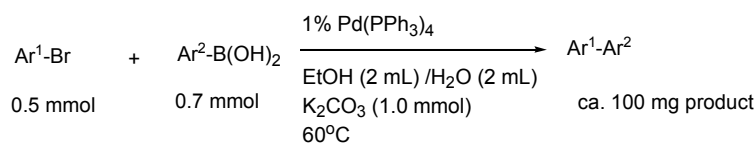
- Use vacuum or an air or inert gas stream to evaporate any solvent remaining in the retained powder and/or any water remaining on the powder, leaving only the target compound(s) in the dry FastWoRX-M powder.

### Step 6: Elute your target compound(s).

- The FastWoRX-M powder can be loaded into any commercial flash chromatography system or you can elute the target(s) manually by dipping/stirring the retained powder in your desired solvent.

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Using the FastWoRX work-up of this typical Suzuki reaction as an example:



1. Add water or brine (~2 mL) (*to quench the reaction and dissolve the inorganic salts*) and ethyl acetate (~2 mL) (*added ONLY because the solvent used in this reaction is water soluble; otherwise, no additional solvent is needed*) and FastWoRX-M (~2 gram) to the reaction mixture. Stir the mixture for ~1 min.

2. Transfer the reaction mixture from the reactor to a round bottom flask (*a small amount of water or brine and ethyl acetate can be used to rinse the reactor*). Then, remove the organic solvents using a rotavap (*no need to separate the aqueous phase*). Separate the FastWoRX-M using a magnet or filter the reaction mixture using a loading cartridge. Use an air or inert gas stream or purge the loading cartridge with vacuum for ~2 min to remove residual water and organic solvents and go to flash chromatography.