



**General Description**

ArmaKleen™ MM-Recycle is a non-silicated, high performance aqueous parts cleaner and rust preventative. The unique composition of this low pH product makes it an ideal choice for parts washing applications using ultrafiltration technology to recycle and re-use this aqueous cleaning solution.

Usable in immersion, ultrasonic & Spray parts cleaning systems as well as mop bucket stations this tenacious aqueous cleaner is effective on a variety of contaminants including metalworking fluids, shop dirt, grease and oil. ArmaKleen MM-Recycle works exceptionally well in applications as a final clean when low residue is required. It is multi-metal safe so it can be used to clean a variety of substrates including steel, stainless steel, cast iron, aluminum, copper and brass.

This low residue formula will not only clean but provide temporary indoor rust protection when left on metal surfaces. The duration of rust protection is directly related to environmental storage conditions.

<b>Features</b>	<b>Benefits</b>
Recyclable	Will pass through ultrafiltration membranes and extend cleaner life
Non-silicated, Low residue	Rinses freely and will not clog ultrafiltration membranes
Low pH	Enhances worker safety
Versatile	Safe on a variety of substrates and contaminants
Hard Water Tolerant	Reduces costs associated with equipment maintenance
Cleaner/Rust Preventative	Effectively cleans and protects metal from rusting in one step
Low VOCs	Meets Air Quality standards for VOC emissions at 10% concentration or lower
Multi-Metal Safe	Can simultaneously clean steel, aluminum, copper and brass
Non flammable	Improves employee safety and eliminates fire hazards

**Operating Parameters**

pH of Concentrate: 9.2  
 pH of 10% by volume dilution: 9.3

<b>Equipment Type</b>	<b>MM-Recycle Concentration</b>	<b>Washer Temperature</b>
Spray Washer	10% by volume	130°F to 160°F
Immersion Washer	10% by volume	120°F to 160°F
Ultrasonic Washer	10% by volume	120°F to 160°F
Mop Bucket Stations	3% to 10% by volume	Ambient to 110°F

**Safety-Kleen Part Numbers**

ArmaKleen™ Product (55 Gallon Drum) SK P/N: 6301 (inventory) 6446 (sales)  
 ArmaKleen™ Product (5 Gallon Pail) SK P/N: 6346 (sales)



**Additives**

ArmaKleen M-Defoamer HD SK P/N 6310 (Pints – 8 per case)

ArmaKleen M-RP (for added rust protection) SK P/N 6342 (5-gallon pail)

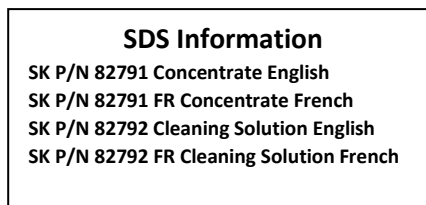
**Soil Compatibility**

Machining coolants, stamping compounds, grease, protective oils, engine oils, brake dust, shop dirt and other commercial and industrial soils.

**Substrate Compatibility**

Steel, stainless steel, brass, copper and aluminum.

**Compliance Information**



**Titration Information**

SK P/N 4623 Total Alkalinity Titration Kit (order through branch SAP)

**Procedure**

1. Fill graduated cylinder with 10 mL of ArmaKleen MM-Recycle cleaning solution. The bottom curve of the solution should touch the top of the indicated line.
2. Pour the measured amount of cleaning solution from the graduated cylinder into the Erlenmeyer titration flask. Rinse the cylinder with 5-8 mL of water and transfer it to the same flask.
3. Add 5 drops of Bromocresol Green-Methyl Red Indicator Solution (small dropper bottle) to the flask and mix to produce a blue color. Clean water may be added to dirty solutions to see the color change more clearly. Several more drops of indicator solution may also be added if the solution is excessively dirty.
4. Carefully add 1.0N Sulfuric Acid (square dropper bottle) one drop at a time to the flask, swirling the flask after each drop. Count the number of drops.
5. When the solution changes to a greenish brown or tan color you are near the end point. Continue adding and counting the number of drops until the solution turns to a peach or bright pink color and the addition of an one more drop does not cause any further color change.
6. Use the titration table to find the cleaner concentration from the number of drops of acid used.
7. Wash the test solution down a sink with water. Rinse the graduated cylinder and mixing flask well before storing in the case.



Cat.# 27501-00 Titration Guide Rev. 6, 9/10

TITRATION TABLE																						
% CLEANER CONCENTRATION																						
Cleaner	mls	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	25
Sample		DROPS OF ACID REQUIRED FOR COLOR CHANGE																				
MM-Recycle	5	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	50

**Precautions**

At elevated use concentrations spotting or staining may occur in no-rinse applications. Foaming may occur in high pressure (above 60 psi) spray systems or at operating temperatures below 120°F.

*IMPORTANT: The information presented in this product labeling and literature, while not guaranteed, is true and accurate to the best of our knowledge. No warranty, express or implied, is made regarding performance, stability or otherwise. Such information is not intended to be all-inclusive, and the manner and conditions of particular uses may involve other or additional preparatory, performance or safety considerations. While our technical personnel will be happy to respond to questions, safe, effective handling and use remains the responsibility of the user.*