Product Info Sheet

General Description

ArmaKleen™ 4 in 1 Cleaner is a multi-purpose cleaner designed to be used in a full spectrum of parts washers and across a wide temperature range. ArmaKleen 4 in 1 can be used in manual, immersion, ultrasonic and spray parts cleaning equipment. 4 in 1's complex surfactant package delivers effective cleaning from 65°F, for manual cleaning applications, all the way to 180°F for those jobs done in spray washers.

The ArmaKleen 4 in 1 surfactant package was designed to provide strong cleaning performance removing plant-based and petro-based greases and oils.

With its wide cleaning capabilities, ArmaKleen 4 in 1 Cleaner was designed to be the go to universal cleaning chemistry. It will work in almost all commercial & industrial cleaning applications.

Super-concentrated ArmaKleen 4 in 1 is used at half of the concentration of normal single purpose cleaners.

When left on metal surfaces, ArmaKleen 4 in 1 Cleaner provides temporary indoor rust protection during storage, between operations. The duration of rust protection is directly related to environmental storage conditions.

Features	Benefits
Versatile	Can be used in manual, immersion, ultrasonic and spray parts cleaning equipment applications
Super Concentrated	Effective at half the normal cleaner concentration
Low Foaming	Will not foam in spray applications as low as 110°F
Multi-Metal Safe	Can simultaneously clean steel, aluminum, copper and brass
Cleaner/Rust Preventative	Cleans metals and provides short term indoor rust protection
Non flammable	Improves employee safety and eliminates fire hazards
Low VOCs	Meets Air Quality standards for VOC emissions at 10% concentration or lower
No phosphates, nitrites or amines	Safer for workers and the environment
NSF Approved	Certified as an A-1 Cleaner

Operating Parameters

pH of Concentrate:	11.9
pH of 10% by volume dilution	11.0
pH of 5% by volume dilution:	10.5

Product Info Sheet

Operating Parameters – Cont.

Equipment Type	4 in 1 Concentration	Washer Temperature
Spray Washer	5% by volume	130°F to 180°F
Immersion, Spray Under Immersion Washers	5% by volume	110°F to 160°F
Ultrasonic Washer	5% by volume	110°F to 160°F
Manual Parts Washers, light to moderate soils	10% by volume	Room Temperature
Manual Parts Washers, medium to heavy soils	10% by volume	120°F
Brake Washers	2.5% to 5% by volume	Room Temperature

Safety-Kleen Part Numbers

ArmaKleen™ 4 in 1 Cleaner (55 Gallon Drum) SK P/N: **6365** (Inventory) **6466** (Sales to Customers)
ArmaKleen™ 4 in 1 Cleaner (5 Gallon Pail) SK P/N: **6366** (Inventory) **6366** (Sales to Customers)
ArmaKleen™ 4 in 1 Cleaner (275 gallon tote) SK P/N: **6365** (inventory) **6866** (Sales to Customers)

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

Grease, oil, lubricants, machining fluids, rust preventatives, metal working compounds and other commercial and industrial soils

Substrate Compatibility

Steel, stainless steel, cast iron, aluminum, copper, brass and other alloys

Compliance Information

NSF Certified
Registration # Concentrate 145044
Registration # Cleaning Solution 145045

South Coast Air Quality Mgmt. District

SDS Information
SK P/N 820071 Concentrate English
SK P/N 820071 FR Concentrate French
SK P/N 820070 Cleaning Solution English
SK P/N 820070 FR Cleaning Solution French

Titration Information

Hach Titration Kit

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

Procedure

1. Fill graduated cylinder with 10 mL of ArmaKleen 4 in 1 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 a 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																			
4 in 1	10	2	4	5	6	7	9	10	11	13	14	15	17	18	19	21	22	23	25	26	27	35

AquaPhoenix Titration Kit

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

Procedure

1. Fill graduated cylinder with 10 mL of ArmaKleen 4 in 1 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.
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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.# xxxxxxxx Titration Guide Rev. xxxxx

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4 in 1	10	2	4	4	6	7	9	10	10	11	13	14	16	17	18	20	21	23	24	25	27	38

Precautions

At elevated use concentrations (>10% dilution), 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 110°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.