



Product Info Sheet



General Description

ArmaKleen™ Bio 24 is a bio based, super concentrated, water based industrial parts washing cleaner/degreaser designed to be used in the automotive, industrial, military and government cleaning applications. Bio 24 is formulated to work in manual, immersion, spray under immersion, ultrasonic and spray washing equipment to remove soils such as grease, lubricating oils, dirt and other soils from steel, copper, aluminum and other polymeric surfaces.

ArmaKleen Bio 24 is USDA certified as a Bio Preferred product and contains 72% sustainable bio carbon containing ingredients (surfactants and additives) that are derived from plants and other renewable agricultural, marine or forestry materials.

ArmaKleen Bio 24 complies with the Green Seal™ GS-34 Standard for Cleaning and Degreasing Agents.

ArmaKleen Bio 24's super-concentrated formula allows this product to be diluted with water at recommended concentrations ranging from 5% to 10% solutions. At a 10% dilution ratio, Bio 24 has a VOC content of about 12g/L which complies with the 25g/L SCAQMD VOC air regulations. The ingredients of ArmaKleen Bio 24 are also biodegradable.

Features	Benefits
Bio based Sustainable low pH Aqueous Cleaner	Bio 24 is derived from renewable sources, non-corrosive to skin, biodegradable and contains 72% bio-carbon content
Versatile	Can be used in manual, spray, immersion and ultrasonic applications
Super Concentrated	10% concentration recommended; however it can be effective at lower concentrations if the application warrants it.
Low Foaming	Will not foam in spray applications as low as 110°F
Multi-metal Safe	Can simultaneously clean steel, aluminum, copper and brass. Does not tarnish or dull cast aluminum parts
Cleaner/Rust Preventative	Cleans metals and provides short term indoor rust protection
Non flammable	Improves employee safety and eliminates fire hazards
Low VOCs	Meets SCAQMD Air Quality standards for VOC emissions at 30% concentration and lower as per 40CFR Part 51.100(s)
No phosphates or nitrites	Safer for workers and the environment
NSF Approved	Certified as an A-1 Cleaner

Operating Parameters

pH of Concentrate: 10.5
 pH of 10% by volume dilution: 10.0
 pH of 5% by volume dilution: 9.8

Operating Parameters – cont.

Equipment Type	Bio 24 Concentration	Washer Temperature
Spray Washer	5% by volume	130°F to 160°F
Immersion Washer	5% by volume	130°F to 160°F
Ultrasonic Washer	5% by volume	130°F to 160°F
Manual with light to moderate soils	10% by volume	Ambient (room temperature)
Manual with medium to heavy soils	10% by volume	130°F

Safety-Kleen Part Numbers

ArmaKleen™ Product (55 Gallon Drum) SK P/N: 6367 (Inventory) 6469 (Sales to Customers)

ArmaKleen™ Product (5 Gallon Pail) SK P/N: 6368 (Inventory) 6368 (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, baked on carbon and other commercial and industrial soils.

Substrate Compatibility

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

Compliance Information



This product meets Green Seal™ Standard GS-34 based on effective performance and protective limits on: VOCs, ozone depleting chemicals, and human & environmental toxicity. GreenSeal.org.



SDS Information
 SK P/N 820233 Concentrate English
 SK P/N Not Assigned FR Concentrate French
 SK P/N 820236 Cleaning Solution English
 SK P/N Not Assigned FR Cleaning Solution French



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Titration Information

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

Procedure

1. Fill graduated cylinder with 10 mL of ArmaKleen Bio 24 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																				
Bio 24	5	2	5	7	9	12	14	17	19	22	24	26	28	31	34	36	38	40	42	44	46	52

Precautions

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.