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REGISTER OF WAGE DETERMINATIONS UNDER THE SERVICE CONTRACT ACT
By direction of the Secretary of Labor

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON D.C. 20210

Diane C. Koplewski
Director

Division of
Wage Determinations

Wage Determination No.: 2005-2103
Revision No.: 11
Date Of Revision: 06/13/2011

States: District of Columbia, Maryland, Virginia

Area: District of Columbia Statewide
Maryland Counties of Calvert, Charles, Frederick, Montgomery, Prince George's, St Mary's
Virginia Counties of Alexandria, Arlington, Fairfax, Falls Church, Fauquier, King George, Loudoun, Prince William, Stafford

Fringe Benefits Required Follow the Occupational Listing

OCCUPATION CODE - TITLE	FOOTNOTE	RATE
01000 - Administrative Support And Clerical Occupations		
01011 - Accounting Clerk I		15.08
01012 - Accounting Clerk II		16.92
01013 - Accounting Clerk III		22.30
01020 - Administrative Assistant		31.41
01040 - Court Reporter		21.84
01051 - Data Entry Operator I		14.38
01052 - Data Entry Operator II		15.69
01060 - Dispatcher, Motor Vehicle		17.87
01070 - Document Preparation Clerk		14.21
01090 - Duplicating Machine Operator		14.21
01111 - General Clerk I		14.88
01112 - General Clerk II		16.24
01113 - General Clerk III		18.74
01120 - Housing Referral Assistant		25.29
01141 - Messenger Courier		13.62
01191 - Order Clerk I		15.12
01192 - Order Clerk II		16.50
01261 - Personnel Assistant (Employment) I		18.15
01262 - Personnel Assistant (Employment) II		20.32
01263 - Personnel Assistant (Employment) III		22.65
01270 - Production Control Clerk		22.03
01280 - Receptionist		14.43
01290 - Rental Clerk		16.55
01300 - Scheduler, Maintenance		18.07
01311 - Secretary I		18.07
01312 - Secretary II		20.18
01313 - Secretary III		25.29
01320 - Service Order Dispatcher		16.98
01410 - Supply Technician		28.55
01420 - Survey Worker		20.03
01531 - Travel Clerk I		13.29
01532 - Travel Clerk II		14.36
01533 - Travel Clerk III		15.49
01611 - Word Processor I		15.63
01612 - Word Processor II		17.67
01613 - Word Processor III		19.95
05000 - Automotive Service Occupations		

05005 - Automobile Body Repairer, Fiberglass	25.26
05010 - Automotive Electrician	23.51
05040 - Automotive Glass Installer	22.15
05070 - Automotive Worker	22.15
05110 - Mobile Equipment Servicer	19.04
05130 - Motor Equipment Metal Mechanic	24.78
05160 - Motor Equipment Metal Worker	22.15
05190 - Motor Vehicle Mechanic	24.78
05220 - Motor Vehicle Mechanic Helper	18.49
05250 - Motor Vehicle Upholstery Worker	21.63
05280 - Motor Vehicle Wrecker	22.15
05310 - Painter, Automotive	23.51
05340 - Radiator Repair Specialist	22.15
05370 - Tire Repairer	14.44
05400 - Transmission Repair Specialist	24.78
07000 - Food Preparation And Service Occupations	
07010 - Baker	13.85
07041 - Cook I	12.55
07042 - Cook II	14.60
07070 - Dishwasher	10.11
07130 - Food Service Worker	10.66
07210 - Meat Cutter	18.08
07260 - Waiter/Waitress	9.70
09000 - Furniture Maintenance And Repair Occupations	
09010 - Electrostatic Spray Painter	19.86
09040 - Furniture Handler	14.06
09080 - Furniture Refinisher	20.23
09090 - Furniture Refinisher Helper	15.52
09110 - Furniture Repairer, Minor	17.94
09130 - Upholsterer	19.86
11000 - General Services And Support Occupations	
11030 - Cleaner, Vehicles	10.54
11060 - Elevator Operator	10.54
11090 - Gardener	17.52
11122 - Housekeeping Aide	11.83
11150 - Janitor	11.83
11210 - Laborer, Grounds Maintenance	13.07
11240 - Maid or Houseman	11.26
11260 - Pruner	11.58
11270 - Tractor Operator	16.04
11330 - Trail Maintenance Worker	13.07
11360 - Window Cleaner	12.85
12000 - Health Occupations	
12010 - Ambulance Driver	20.41
12011 - Breath Alcohol Technician	20.27
12012 - Certified Occupational Therapist Assistant	23.11
12015 - Certified Physical Therapist Assistant	21.43
12020 - Dental Assistant	17.18
12025 - Dental Hygienist	44.75
12030 - EKG Technician	27.67
12035 - Electroneurodiagnostic Technologist	27.67
12040 - Emergency Medical Technician	20.41
12071 - Licensed Practical Nurse I	19.07
12072 - Licensed Practical Nurse II	21.35
12073 - Licensed Practical Nurse III	24.13
12100 - Medical Assistant	15.01
12130 - Medical Laboratory Technician	18.04
12160 - Medical Record Clerk	17.42
12190 - Medical Record Technician	19.50
12195 - Medical Transcriptionist	18.77
12210 - Nuclear Medicine Technologist	37.60

12221 - Nursing Assistant I		10.80
12222 - Nursing Assistant II		12.14
12223 - Nursing Assistant III		13.98
12224 - Nursing Assistant IV		15.69
12235 - Optical Dispenser		20.17
12236 - Optical Technician		15.80
12250 - Pharmacy Technician		18.12
12280 - Phlebotomist		15.69
12305 - Radiologic Technologist		31.11
12311 - Registered Nurse I		27.64
12312 - Registered Nurse II		33.44
12313 - Registered Nurse II, Specialist		33.44
12314 - Registered Nurse III		40.13
12315 - Registered Nurse III, Anesthetist		40.13
12316 - Registered Nurse IV		48.10
12317 - Scheduler (Drug and Alcohol Testing)		21.73
13000 - Information And Arts Occupations		
13011 - Exhibits Specialist I		19.86
13012 - Exhibits Specialist II		24.61
13013 - Exhibits Specialist III		30.09
13041 - Illustrator I		20.48
13042 - Illustrator II		25.38
13043 - Illustrator III		31.03
13047 - Librarian		33.88
13050 - Library Aide/Clerk		14.21
13054 - Library Information Technology Systems Administrator		30.60
13058 - Library Technician		19.89
13061 - Media Specialist I		18.73
13062 - Media Specialist II		20.95
13063 - Media Specialist III		23.36
13071 - Photographer I		16.65
13072 - Photographer II		18.90
13073 - Photographer III		23.67
13074 - Photographer IV		28.65
13075 - Photographer V		33.76
13110 - Video Teleconference Technician		20.39
14000 - Information Technology Occupations		
14041 - Computer Operator I		18.92
14042 - Computer Operator II		21.18
14043 - Computer Operator III		23.60
14044 - Computer Operator IV		26.22
14045 - Computer Operator V		29.05
14071 - Computer Programmer I	(see 1)	26.36
14072 - Computer Programmer II	(see 1)	
14073 - Computer Programmer III	(see 1)	
14074 - Computer Programmer IV	(see 1)	
14101 - Computer Systems Analyst I	(see 1)	
14102 - Computer Systems Analyst II	(see 1)	
14103 - Computer Systems Analyst III	(see 1)	
14150 - Peripheral Equipment Operator		18.92
14160 - Personal Computer Support Technician		26.22
15000 - Instructional Occupations		
15010 - Aircrew Training Devices Instructor (Non-Rated)		36.47
15020 - Aircrew Training Devices Instructor (Rated)		44.06
15030 - Air Crew Training Devices Instructor (Pilot)		52.81
15050 - Computer Based Training Specialist / Instructor		36.47
15060 - Educational Technologist		35.31
15070 - Flight Instructor (Pilot)		52.81
15080 - Graphic Artist		26.80
15090 - Technical Instructor		25.08

15095 - Technical Instructor/Course Developer	30.67
15110 - Test Proctor	20.20
15120 - Tutor	20.20
16000 - Laundry, Dry-Cleaning, Pressing And Related Occupations	
16010 - Assembler	9.88
16030 - Counter Attendant	9.88
16040 - Dry Cleaner	12.94
16070 - Finisher, Flatwork, Machine	9.88
16090 - Presser, Hand	9.88
16110 - Presser, Machine, Drycleaning	9.88
16130 - Presser, Machine, Shirts	9.88
16160 - Presser, Machine, Wearing Apparel, Laundry	9.88
16190 - Sewing Machine Operator	13.78
16220 - Tailor	14.66
16250 - Washer, Machine	10.88
19000 - Machine Tool Operation And Repair Occupations	
19010 - Machine-Tool Operator (Tool Room)	21.14
19040 - Tool And Die Maker	23.38
21000 - Materials Handling And Packing Occupations	
21020 - Forklift Operator	18.02
21030 - Material Coordinator	22.03
21040 - Material Expediter	22.03
21050 - Material Handling Laborer	13.83
21071 - Order Filler	15.09
21080 - Production Line Worker (Food Processing)	18.02
21110 - Shipping Packer	15.09
21130 - Shipping/Receiving Clerk	15.09
21140 - Store Worker I	11.72
21150 - Stock Clerk	16.86
21210 - Tools And Parts Attendant	18.02
21410 - Warehouse Specialist	18.02
23000 - Mechanics And Maintenance And Repair Occupations	
23010 - Aerospace Structural Welder	27.21
23021 - Aircraft Mechanic I	25.83
23022 - Aircraft Mechanic II	27.21
23023 - Aircraft Mechanic III	28.53
23040 - Aircraft Mechanic Helper	17.54
23050 - Aircraft, Painter	24.73
23060 - Aircraft Servicer	19.76
23080 - Aircraft Worker	21.01
23110 - Appliance Mechanic	21.75
23120 - Bicycle Repairer	14.43
23125 - Cable Splicer	26.02
23130 - Carpenter, Maintenance	21.40
23140 - Carpet Layer	20.49
23160 - Electrician, Maintenance	27.98
23181 - Electronics Technician Maintenance I	24.94
23182 - Electronics Technician Maintenance II	26.47
23183 - Electronics Technician Maintenance III	27.89
23260 - Fabric Worker	19.13
23290 - Fire Alarm System Mechanic	22.91
23310 - Fire Extinguisher Repairer	17.62
23311 - Fuel Distribution System Mechanic	22.81
23312 - Fuel Distribution System Operator	19.38
23370 - General Maintenance Worker	21.43
23380 - Ground Support Equipment Mechanic	25.83
23381 - Ground Support Equipment Servicer	19.76
23382 - Ground Support Equipment Worker	21.01
23391 - Gunsmith I	17.62
23392 - Gunsmith II	20.49
23393 - Gunsmith III	22.91

23410 - Heating, Ventilation And Air-Conditioning Mechanic	23.89
23411 - Heating, Ventilation And Air Contditioning Mechanic (Research Facility)	25.17
23430 - Heavy Equipment Mechanic	22.91
23440 - Heavy Equipment Operator	22.91
23460 - Instrument Mechanic	22.59
23465 - Laboratory/Shelter Mechanic	21.75
23470 - Laborer	14.98
23510 - Locksmith	21.90
23530 - Machinery Maintenance Mechanic	23.12
23550 - Machinist, Maintenance	22.91
23580 - Maintenance Trades Helper	18.27
23591 - Metrology Technician I	22.59
23592 - Metrology Technician II	23.80
23593 - Metrology Technician III	24.96
23640 - Millwright	28.19
23710 - Office Appliance Repairer	22.96
23760 - Painter, Maintenance	21.75
23790 - Pipefitter, Maintenance	24.63
23810 - Plumber, Maintenance	22.29
23820 - Pneudraulic Systems Mechanic	22.91
23850 - Rigger	22.91
23870 - Scale Mechanic	20.49
23890 - Sheet-Metal Worker, Maintenance	22.91
23910 - Small Engine Mechanic	20.49
23931 - Telecommunications Mechanic I	29.95
23932 - Telecommunications Mechanic II	31.55
23950 - Telephone Lineman	27.41
23960 - Welder, Combination, Maintenance	22.91
23965 - Well Driller	22.91
23970 - Woodcraft Worker	22.91
23980 - Woodworker	17.62
24000 - Personal Needs Occupations	
24570 - Child Care Attendant	12.79
24580 - Child Care Center Clerk	17.77
24610 - Chore Aide	10.57
24620 - Family Readiness And Support Services Coordinator	16.90
24630 - Homemaker	18.43
25000 - Plant And System Operations Occupations	
25010 - Boiler Tender	27.30
25040 - Sewage Plant Operator	20.84
25070 - Stationary Engineer	27.30
25190 - Ventilation Equipment Tender	19.49
25210 - Water Treatment Plant Operator	20.84
27000 - Protective Service Occupations	
27004 - Alarm Monitor	20.57
27007 - Baggage Inspector	12.71
27008 - Corrections Officer	22.80
27010 - Court Security Officer	24.72
27030 - Detection Dog Handler	20.57
27040 - Detention Officer	22.80
27070 - Firefighter	24.63
27101 - Guard I	12.71
27102 - Guard II	20.57
27131 - Police Officer I	26.52
27132 - Police Officer II	29.67
28000 - Recreation Occupations	
28041 - Carnival Equipment Operator	13.59
28042 - Carnival Equipment Repairer	14.63

28043 - Carnival Equpment Worker		9.24
28210 - Gate Attendant/Gate Tender		13.01
28310 - Lifeguard		11.59
28350 - Park Attendant (Aide)		14.56
28510 - Recreation Aide/Health Facility Attendant		10.62
28515 - Recreation Specialist		18.04
28630 - Sports Official		11.59
28690 - Swimming Pool Operator		18.21
29000 - Stevedoring/Longshoremen Occupational Services		
29010 - Blocker And Bracer		23.13
29020 - Hatch Tender		23.13
29030 - Line Handler		23.13
29041 - Stevedore I		21.31
29042 - Stevedore II		24.24
30000 - Technical Occupations		
30010 - Air Traffic Control Specialist, Center (HFO)	(see 2)	39.92
30011 - Air Traffic Control Specialist, Station (HFO)	(see 2)	26.84
30012 - Air Traffic Control Specialist, Terminal (HFO)	(see 2)	29.56
30021 - Archeological Technician I		20.19
30022 - Archeological Technician II		22.60
30023 - Archeological Technician III		27.98
30030 - Cartographic Technician		27.98
30040 - Civil Engineering Technician		26.41
30061 - Drafter/CAD Operator I		20.19
30062 - Drafter/CAD Operator II		22.60
30063 - Drafter/CAD Operator III		25.19
30064 - Drafter/CAD Operator IV		31.00
30081 - Engineering Technician I		22.92
30082 - Engineering Technician II		25.72
30083 - Engineering Technician III		28.79
30084 - Engineering Technician IV		35.64
30085 - Engineering Technician V		43.61
30086 - Engineering Technician VI		52.76
30090 - Environmental Technician		27.41
30210 - Laboratory Technician		23.38
30240 - Mathematical Technician		28.94
30361 - Paralegal/Legal Assistant I		21.36
30362 - Paralegal/Legal Assistant II		26.47
30363 - Paralegal/Legal Assistant III		32.36
30364 - Paralegal/Legal Assistant IV		39.16
30390 - Photo-Optics Technician		27.98
30461 - Technical Writer I		21.93
30462 - Technical Writer II		26.84
30463 - Technical Writer III		32.47
30491 - Unexploded Ordnance (UXO) Technician I		24.74
30492 - Unexploded Ordnance (UXO) Technician II		29.93
30493 - Unexploded Ordnance (UXO) Technician III		35.88
30494 - Unexploded (UXO) Safety Escort		24.74
30495 - Unexploded (UXO) Sweep Personnel		24.74
30620 - Weather Observer, Combined Upper Air Or Surface Programs	(see 2)	25.19
30621 - Weather Observer, Senior	(see 2)	27.98
31000 - Transportation/Mobile Equipment Operation Occupations		
31020 - Bus Aide		14.32
31030 - Bus Driver		20.85
31043 - Driver Courier		13.98
31260 - Parking and Lot Attendant		10.07
31290 - Shuttle Bus Driver		15.66
31310 - Taxi Driver		13.98
31361 - Truckdriver, Light		15.66
31362 - Truckdriver, Medium		17.90

31363 - Truckdriver, Heavy	19.18
31364 - Truckdriver, Tractor-Trailer	19.18
99000 - Miscellaneous Occupations	
99030 - Cashier	10.03
99050 - Desk Clerk	11.58
99095 - Embalmer	23.05
99251 - Laboratory Animal Caretaker I	11.30
99252 - Laboratory Animal Caretaker II	12.35
99310 - Mortician	31.73
99410 - Pest Controller	17.69
99510 - Photofinishing Worker	13.20
99710 - Recycling Laborer	18.50
99711 - Recycling Specialist	22.71
99730 - Refuse Collector	16.40
99810 - Sales Clerk	12.09
99820 - School Crossing Guard	13.43
99830 - Survey Party Chief	21.94
99831 - Surveying Aide	13.63
99832 - Surveying Technician	20.85
99840 - Vending Machine Attendant	14.43
99841 - Vending Machine Repairer	18.73
99842 - Vending Machine Repairer Helper	14.43

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: $3.59 per hour or $143.60 per week or $622.27 per month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

THE OCCUPATIONS WHICH HAVE NUMBERED FOOTNOTES IN PARENTHESES RECEIVE THE FOLLOWING:

1) COMPUTER EMPLOYEES: Under the SCA at section 8(b), this wage determination does not apply to any employee who individually qualifies as a bona fide executive, administrative, or professional employee as defined in 29 C.F.R. Part 541. Because most Computer System Analysts and Computer Programmers who are compensated at a rate not less than $27.63 (or on a salary or fee basis at a rate not less than $455 per week) an hour would likely qualify as exempt computer professionals, (29 C.F.R. 541. 400) wage rates may not be listed on this wage determination for all occupations within those job families. In addition, because this wage determination may not list a wage rate for some or all occupations within those job families if the survey data indicates that the prevailing wage rate for the occupation equals or exceeds $27.63 per hour conformances may be necessary for certain nonexempt employees. For example, if an individual employee is nonexempt but nevertheless performs duties within the scope of one of the Computer Systems Analyst or Computer Programmer

occupations for which this wage determination does not specify an SCA wage rate, then the wage rate for that employee must be conformed in accordance with the conformance procedures described in the conformance note included on this wage determination.

Additionally, because job titles vary widely and change quickly in the computer industry, job titles are not determinative of the application of the computer professional exemption. Therefore, the exemption applies only to computer employees who satisfy the compensation requirements and whose primary duty consists of:

(1) The application of systems analysis techniques and procedures, including consulting with users, to determine hardware, software or system functional specifications;

(2) The design, development, documentation, analysis, creation, testing or modification of computer systems or programs, including prototypes, based on and related to user or system design specifications;

(3) The design, documentation, testing, creation or modification of computer programs related to machine operating systems; or

(4) A combination of the aforementioned duties, the performance of which requires the same level of skills. (29 C.F.R. 541.400).

2) AIR TRAFFIC CONTROLLERS AND WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A links to the Directory may be found on the WHD home page at http://www.dol.gov/esa/whd/ or through the Wage Determinations On-Line (WDOL) Web site at http://wdol.gov/.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).

2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.

3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).

4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.

5) The contracting officer transmits the Wage and Hour decision to the contractor.

6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

GS-53

GREEN SEAL™ STANDARD FOR

SPECIALTY CLEANING PRODUCTS FOR INDUSTRIAL AND INSTITUTIONAL USE

FIRST EDITION
AUGUST 9, 2011

Green Seal, Inc. • 1001 Connecticut Ave. NW, Ste 872 • Washington, DC USA 20036-5525
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GREEN SEAL™

Green Seal is a non-profit organization whose mission is to use science-based programs to empower consumers, purchasers, and companies to create a more sustainable world. Green Seal sets leadership standards that aim to reduce, to the extent technologically and economically feasible, the environmental, health, and social impacts throughout the life-cycle of products, services, and companies. The standards may be used for conformity assessment, purchaser specifications, and public education.

Green Seal offers certification of products, services, and companies in conformance with its standards. For additional information on Green Seal or any of its programs, contact:

Green Seal
1001 Connecticut Avenue, NW, Suite 827
Washington, DC 20036-5525
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GREEN SEAL™ STANDARD FOR SPECIALTY CLEANING PRODUCTS FOR INDUSTRIAL AND INSTITUTIONAL USE, GS-53

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FOREWORD

General. The final issued standard was developed in an open and transparent process with stakeholder input that included producers, users, and general interests.

The requirements in the standard are based on an assessment of the environmental, health, or social impacts associated with the products covered in the scope of the standard. The requirements included in the standard are subject to revision. Provisions for safety have not been included in this standard. This standard neither modifies nor supersedes laws and regulations. Compliance with this standard is not a substitute for, and does not assure, compliance with any applicable law or regulations. This standard (and any corresponding conformity assessment) presumes compliance with all applicable laws and regulations.

Products that are substantially similar to those covered by this standard in terms of function and life cycle considerations may be evaluated against the intent of the requirements of this standard, accounting for relevant differences between the intended scope of the standard and the actual product, service, or organization to be evaluated.

This standard may not anticipate features of the product that may significantly, and undesirably, increase its impact on the environment, health, or society. In such a situation, Green Seal will ordinarily amend its standards to account for the unanticipated environmental, health, and societal impacts.

Normative references (e.g., other standards) in this standard intend to refer to the most recent edition of the normative reference.

Edition. This version is the First Edition.

Disclaimer of Liability. Green Seal™, as the developer of this standard, shall not incur any obligations or liability for any loss or damages, including, without limitation, indirect, consequential, special, or incidental damages arising out of or in connection with the interpretation or adoption of, reliance upon, or any other use of this standard by any party. Green Seal makes no express or implied warranty of merchantability or fitness for a particular purpose, nor any other express or implied warranty with respect to this standard.

Tests may be required by the standard that involve safety considerations. Adequate safeguards for personnel and property should be employed in conducting such tests.

ACRONYMS AND ABBREVIATIONS

ACGIH. American Conference of Governmental Industrial Hygienists
AOEC. Association of Occupational and Environmental Clinics
ASTM. ASTM International, a standard setting organization formerly known as the American Society for Testing and Materials
ATTC. American Type Culture Collection
BCF. Bioconcentration Factor
BOD. Biological Oxygen Demand
CAS. Chemical Abstracts Service
CDC. United States Centers for Disease Control
CFC. Chlorofluorocarbon
CFU. Colony Forming Unit
CO_2. Carbon Dioxide
CFR. Code of Federal Regulations
CSPA. Consumer Specialty Products Association
DOC. Dissolved Organic Carbon
ECHA. European Chemicals Agency
ECVAM. European Centre for the Validation of Alternative Methods
EPA. United States Environmental Protection Agency
Ex-ECB. ex-European Chemicals Bureau
FAO. Food and Agricultural Organization of the United Nations
FDA. United States Food and Drug Administration
GHS. Globally Harmonized System of Classification and Labeling of Chemicals
GMM. Genetically Modified Microorganism
GMP. Good Manufacturing Practices
GREENGUARD. GREENGUARD Environmental Institute an industry-independent, non-profit organization (www.greenguard.org)
IARC. International Agency for Research on Cancer
ICCVAM. Interagency Coordinating Committee on the Validation of Alternative Methods
ILO. International Labour Organization
INCI. International Nomenclature of Cosmetic Ingredients
IRIS. Integrated Risk Information System.
ISO. International Organization for Standardization
JECFA. Joint Food and Agricultural Organization of the United Nations (FAO)/ World Health Organization (WHO) Expert Committee on Food Additives
LOAEL. Lowest-Observed Adverse Effect Level
NIH. United States Department of Health and Human Services, National Institutes of Health
NOAEL. No-Observed Adverse Effect Level
NOP. National Organic Program
NTP. National Toxicology Program
OECD. Organization for Economic Co-operation and Development

OPP. Office of Pesticide Programs of the United States Environmental Protection Agency
OSHA. Occupational Safety and Health Administration
SDS. Safety Data Sheet
ThOD. Theoretical Oxygen Demand.
TRI PBT. EPA Toxic Release Inventory Persistent, Bioaccumulative, and Toxic (TRI PBT) Chemicals
USDA. United States Department of Agriculture
WHO. World Health Organization

GREEN SEAL™ STANDARD FOR SPECIALTY CLEANING PRODUCTS FOR INDUSTRIAL AND INSTITUTIONAL USE, GS-53

1.0 SCOPE

This standard establishes environmental, health, and social requirements for *specialty cleaning products* intended for *industrial and institutional use*. For the purposes of this standard, this includes, but is not limited to: *boat cleaning products*; *boat wax, polish, sealant or glaze products*; *deck, siding, and outdoor furniture cleaning products*; *dish cleaning products (automatic and hand)*; *furniture polish products*; *graffiti remover products*; *metal cleaning products*; *motor vehicle cleaning products*; *motor vehicle wax, polish, sealant, or glaze products*; *motor vehicle dressing products; waterless motor vehicle cleaning products; tire and wheel cleaning products; motor vehicle windshield washing fluid*; *odor remover products*; *optical lens cleaning products*; *oven cleaning products*; *upholstery cleaning products*; *printing press cleaning products; chewing gum remover products; adhesive remover products; rust stain remover products; dishwasher cleaning products; electronic cleaning products; leather cleaning products; pressurized gas duster products; dusting aid products; antimicrobial pesticide products* (e.g., products covered by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)) and other *industrial and institutional use* products sold for specialty uses[1]. This standard includes specialty cleaning products that contain *enzymes* or *microorganisms.* Routine cleaning products (e.g., general purpose, restroom) that contain *enzymes* or *microorganisms* are included in this standard until the Green Seal Standard for Cleaning Products for Industrial and Institutional Use, GS-37, is revised to include such products[2]. This standard does not apply to products intended for household use, laundry care products, *air fresheners*, or products that serve as sporicides, sterilizers, or used to sterilize *critical* and *semicritical medical devices* and equipment. See Appendix 1 for an example list of products included in this standard.

Due to the large number of possible cleaning products, processes, soil types, and cleaning requirements, the compatibility of cleaning products with surface materials is not specifically addressed in this standard. Product users should follow the manufacturer's instructions on compatibility.

This standard neither modifies nor supersedes laws and regulations. Compliance is required for all applicable laws and regulations for the manufacturing and marketing of products. Generally, the requirements included in this standard cover aspects above and beyond compliance issues.

[1] Products that are sold for routine cleaning functions in a building including general purpose, floor, restroom, toilet, glass and carpet cleaning are covered under the Green Seal Standard for Cleaning Products for Industrial and Institutional Use, GS-37.

[2] When GS-37 is revised to include enzymes and microorganisms this sentence in the Scope and the corresponding criteria for products included in the scope of GS-37 will be removed from this standard.

Words and phrases described in the standard that appear in *italics* have a corresponding definition located in the definition section of the standard, Annex A.

Criteria that include an asterisk (*) in the title are considered foundational criteria[3].

2.0 PRODUCT-SPECIFIC PERFORMANCE REQUIREMENTS

2.1 Product Performance. Each product shall clean soils and surfaces specific to the intended use of the *specialty cleaning product* effectively, at the most dilute/least concentrated manufacturer-recommended dilution level for routine cleaning. Products shall be diluted, as required, just prior to testing using water from the cold tap at no more than 50ºF (10ºC). Exceptions shall be made for *dish cleaning products, motor vehicle cleaning products,* and *upholstery cleaning products*, which shall perform at the temperatures specified in the corresponding criteria that follow. The following criteria include test methods that are applicable to some product categories, for all other product categories follow section 2.2 Alternative Performance Requirements herein. Requirements for *antimicrobial pesticide products* are included in section 2.3 herein.

2.1.1 General Purpose Cleaning Products[4] and Deck, Siding, and Outdoor Furniture Cleaning Products. *General purpose cleaning products* and *deck, siding, and outdoor furniture cleaning products* shall remove at least 80% of the particulate soil in ASTM International (ASTM) D4488, A5[5].

2.1.2 Restroom Cleaning Products[6]. *Restroom cleaning products* shall remove at least 75% of the soil in ASTM D5343. If the product is used for toilet bowl or urinal cleaning, then it must also demonstrate efficacy for water hardness removal with an appropriate method following section 2.2 Alternative Performance Requirements herein.

2.1.3 Boat, Motor Vehicle, Tire and Wheel, and Waterless Motor Vehicle Cleaning Products. *Boat, motor vehicle, tire and wheel, and waterless motor vehicle cleaning products* shall remove at least 80% of the

[3] Foundational criteria are set-up to be the same across Green Seal's cleaning product standards, though some unique exceptions may be included for each standard. Revisions to these criteria in the future will apply to all standards that include the identified foundational criteria (excluding unique exceptions).
[4] Note the definition for general purpose cleaning products in this standard (Annex A). For the purposes of this standard, this is limited to products that contain enzymes and microorganisms, which are excluded from the Green Seal Standard for Industrial and Institutional Cleaning Products, GS-37.
[5] The ASTM D4488-95 method has been withdrawn by ASTM, however it is still the best available method for this performance testing, is still available for purchase, and is regularly used by laboratories to test performance.
[6] Note the definition for restroom cleaning products in this standard (Annex A). For the purposes of this standard, this is limited to products that contain enzymes and microorganisms, which are excluded from the Green Seal Standard for Industrial and Institutional Cleaning Products, GS-37.

particulate soil in ASTM D4488, A5. *Motor vehicle cleaning products* may be diluted with warm or hot water where required by performance considerations if the product is proven to suffer significant performance degradation in cold water.

2.1.4 Bilge Cleaning Products. *Bilge cleaning products* shall demonstrate efficacy for degreasing (emulsifying oil, grease, and fuel) and cleaning (removal of soils and mold stains) with an appropriate test method following section 2.2 Alternative Performance Requirements herein.

2.1.5 Boat Wax, Polish, Sealant, or Glaze Products. *Boat wax, polish, sealant, or glaze products* shall be tested for gloss and smear resistance with an appropriate method following section 2.2 Alternative Performance Requirements herein.

2.1.6 Motor Vehicle Wax, Polish, Sealant, or Glaze Products. *Motor vehicle wax, polish, sealant, or glaze products* shall perform equivalent to or better than the control product in ASTM D3836 or ASTM D6625. The control product shall be a national market-leading product.

2.1.7 Dish Cleaning Products. *Dish cleaning products* and *rinse agent products* are exempt from the water temperature requirement in 2.0 for performance testing. *Automatic* and *hand dish cleaning products* shall be tested at the lowest effective temperature as per FDA Food Code regulations. *Rinse agent products* shall be tested at the temperature specified in the method cited in 2.1.7.2 herein.

2.1.7.1 Automatic Dish Cleaning Products. *Automatic dish cleaning products* shall demonstrate soil removal efficacy with an appropriate method following section 2.2 Alternative Performance Requirements herein. The product shall be tested on the following types of soils: colored, bleachable soil; dry starchy soil; and dry proteinaceous soil. The method shall be performed in an institutional machine.

2.1.7.2 Rinse Agent Products and Combined Dish Cleaning/Rinse Agent Products for Automatic Dishwashers. *Rinse agent products* shall achieve a visual rating of at least two (2) when evaluated according to the method in ASTM D3556, or Consumer Specialty Products Association (CSPA) DCC-05A.

2.1.7.3 Hand Dish Cleaning Products. *Hand dish cleaning products* shall demonstrate soil removal efficacy with an appropriate method following section 2.2 Alternative Performance Requirements herein. The product shall be tested using soils B and D from ASTM D4009, or equivalent.

2.1.8 Furniture Polish Products. *Furniture polish products* shall be tested for gloss, water and smear protection, and clean-ability (i.e., buffing, soil and dust removal) with an appropriate method following 2.2 Alternative Performance Requirements herein.

2.1.9 Graffiti Remover Products. *Graffiti remover products* shall demonstrate effectiveness in removing graffiti markings (e.g., aerosol paint, felt tip pen, crayon, lipstick) while maintaining the appearance of the underlying substrate (e.g., brick, sandstone, metal, wood) for its marketed use, with an appropriate method following section 2.2 Alternative Performance Testing herein.

2.1.10 Metal Cleaning Products. *Metal cleaning products* shall have a Cleaning Effectiveness Factor (CEF) of at least 0.80 as measured according to ASTM G122.

2.1.11 Motor Vehicle Windshield Washing Fluid Products. *Motor vehicle windshield washing fluid products* shall be tested according to CSPA DCC-09 and achieve at least a rating of three in each of the following categories: soil removal, smearing, and streaking. Additionally, "winter formula" *products as used* shall remain a liquid for at least twenty-four (24) hours at 0°F (-17.8°C).

2.1.12 Optical Lens Cleaning Products. *Optical lens cleaning products* shall be tested according to CSPA DCC-09 and achieve at least a rating of three (3) in each of the following categories: soil removal, smearing, and streaking.

2.1.13 Oven Cleaning Products. *Oven cleaning products* shall achieve at least a 90% soil removal in CSPA DCC-12 using test soils A or B.

2.1.14 Upholstery Cleaning Products. *Upholstery cleaning products* shall be tested for cleaning efficiency and resoiling resistance with an appropriate method following section 2.2 Alternative Performance Requirements herein. *Upholstery cleaning products* may be diluted with warm or hot water where required by the test method or performance considerations if the product is proven to suffer significant performance degradation in cold water.

2.2 *Alternative Performance Requirements. Alternatively, the product shall demonstrate that it performs equivalent to or better than a national market-leading product in its category, compared at the most dilute/least concentrated manufacturer-recommended dilution level for routine cleaning, using an objective, scientifically-validated method conducted under controlled and reproducible laboratory conditions. The water temperature requirement in 2.0 shall apply, unless the noted exceptions in 2.1.3 *motor vehicle cleaning products*,

2.1.7 for *dish cleaning products,* and 2.1.14 for *upholstery cleaning products* apply. Test methodology and results shall be documented in sufficient detail and provided to the certification program.

2.3 Antimicrobial Pesticide Products. Any product that makes an antimicrobial, *disinfecting* or *sanitizing*, claim shall be an *EPA-registered antimicrobial pesticide product* with no unresolved efficacy failures and no unresolved compliance or enforcement actions or a *minimum risk pesticide*-based product. *Minimum risk pesticide*-based products shall demonstrate that they meet the efficacy requirements for the target organism in accordance with appropriate FIFRA Efficacy Test Protocols.

3.0 PRODUCT-SPECIFIC SUSTAINABILITY REQUIREMENTS

3.1 *Formula Disclosure for Certification. For certification to this standard, all of the formula *components* shall be disclosed to the certification program including the chemical name, the Chemical Abstracts Service (CAS) registry number, and the levels (% by weight) of each *component* in the formula.

3.2 *Animal Testing. To avoid new animal testing, previous test results will be accepted as evidence of meeting a criterion. When existing data is not available, the preferred methods for new testing include methods that replace, reduce, or refine animal use, particularly those recommended by the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM) or the European Centre for the Validation of Alternative Methods (ECVAM), unless indicated otherwise. In addition, other non-animal (in-vitro) test results, modeling data, data from structural analogs, and other lines of evidence may be accepted, provided that the methods are peer-reviewed and applicable. Specific in vitro or modeling methods may be noted in the standard, but additional options may be accepted by the certification program**.**

Further, a mixture need not be tested if existing information demonstrates that each of the applicable *components* complies with the criterion.

3.3 *Acute Mammalian Toxicity. The *undiluted product* shall not be toxic to humans. A product is considered toxic if any of the following criteria apply[7,8]:

[7] Products meeting the requirements in 3.3 will not fall into hazard categories 1 through 5 for acute oral and dermal toxicity and will not fall into hazard categories 1 through 4 for acute inhalation toxicity under the Globally Harmonized System for the Classification and Labeling of Chemicals (*GHS*) when the whole product is evaluated using the weighted average approach.

[8] Recognizing the need to protect animal welfare, testing to demonstrate conformance should only be done after consulting with the certification program to ensure that other means of determining/estimating conformance have been exhausted as provision 3.2 outlines including existing data, modeling data, data from structural analogs, and other lines of evidence.

Oral lethal dose (LD_{50})	$\leq$ 5,000 mg/kg
Inhalation lethal concentration (LC_{50})	$\leq$ 20,000 ppmV at 1 hr
Dermal lethal dose (LD_{50})	$\leq$ 2,000 mg/kg

For purposes of demonstrating compliance with this requirement, existing acute toxicity data for each of the product's *components* at 0.01% or more in the *undiluted product* may be used. These data are used to calculate a weighted average that assumes that the toxicity of the individual *components* is additive. The toxicity values are adjusted by the weight of the *components* in the product and summed using the following formula:

$$TP = \left(\sum_{i=1}^{n} \frac{w_i}{TV_i} \right)^{-1}$$

Where,
TP = toxicity of the product
wt_i = the weight fraction of the *component*
TV = the toxicity value for each *component* (LD_{50})
n = number of *components*

Inhalation toxicity shall be determined from all *components* at 0.01% or more in the *undiluted product*, when the *component* has a vapor pressure greater than 1 mm Hg at 1 atm pressure and 20°C.

Refer to Annex B, for potential alternate thresholds for *closed dilution-control systems*.

3.4 *Skin and Eye Corrosion. The *undiluted product* shall not cause *skin corrosion* or cause *serious eye damage.* For purposes of demonstrating compliance with this requirement, data may be evaluated for each of the product's *components* at 0.01% or more in the *undiluted product*. If the *components* at 0.01% or more in the *undiluted product* are not shown to cause *skin corrosion* or *serious eye damage* at the concentrations used, then the product will not be considered to cause *skin corrosion* or *serious eye damage*, unless the product is required to be labeled as such. Further, a product is considered to cause *skin corrosion* or to cause *serious eye damage* if it has a pH less than or equal to 2 or greater than or equal to 11.5, unless data prove otherwise.

Refer to Annex B, for potential alternate thresholds for *closed dilution-control systems*.

3.5 *Carcinogens and Reproductive Toxins. The *undiluted product* shall not contain any *components* that are *carcinogens* or *reproductive toxins*. The product shall not contain any *components* known to produce or release *carcinogens*.

3.6 *Mutagens and Neurotoxins/Systemic Toxins. The *undiluted product* shall not contain any *components* that have been identified as *mutagens* or *neurotoxins/systemic toxins.*

3.7 *Endocrine Disruptors. The *undiluted product* shall not contain any *components* that are on the EPA List of Chemicals for Tier 1 Screening that have been shown to disrupt hormones (e.g., have estrogen- or androgen-mediated effects), tested according to the EPA Series 890 - Endocrine Disruptor Screening Program Test Guidelines.

3.8 *Asthmagens. The *undiluted product* shall not contain any *components* that have been identified as *asthmagens*. Refer to Annex C, Requirement D for potential exemptions for *enzymes*.

3.9 *Respiratory Sensitization. The *undiluted product* shall not contain any *components* that have been identified as *respiratory sensitizers*. Refer to Annex C, Requirement D for potential exemptions for *enzymes*.

3.10 *Skin Sensitization. The *undiluted product* shall not be a *skin sensitizer*. For purposes of demonstrating compliance with this requirement, data may be evaluated for each of the product's *components* at 0.01% or more in the *undiluted product*. If the *components* at 0.01% or more in the *undiluted product* are not shown to be *skin sensitizers* at the concentrations used, then the product will not be considered to be a *skin sensitizer*.

3.11 *Skin Absorption. The *undiluted product* shall not contain *components* present at 1% or more in the product that are listed on the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) list carrying a skin notation or substances that are listed on the German Deutsche Forschungsgemeinschaft (DFG) maximum allowable concentrations (MAK) list with a skin absorption H notation. Further, the product shall not contain *components* at 0.01% or more in the *undiluted product* that sum to 1% in the formula that are listed on ACGIH or DFG with the same target organ.

3.12 Volatile Organic Compound (VOC) Content. The *product as used* shall contain no more than the current regulatory limits of the Air Resources Board for the State of California (CARB) for its product category. For product categories not regulated by CARB, the VOC level shall not exceed 1% by weight. *Printing press cleaning products* shall meet the South Coast Air Quality Management District requirements for solvent cleaning of ink application equipment found in Rule 1171-Solvent Cleaning Operations. Additionally, the following shall apply:

- CARB VOC requirements for glass cleaners shall apply to *optical lens cleaning products*
- CARB VOC requirements for *motor vehicle wax, polish, sealant, or glaze products* shall apply to *motor vehicle dressing products*
- CARB VOC requirements for bug and tar removers shall apply to *chewing gum remover products*

The VOC content shall be determined either by summing the percent by weight contribution from all *components* of the product that have a vapor pressure of greater than 0.1 mm mercury at 1 atm pressure and 20º C or by the California Air Resources Board Method 310, modified to not allow the exemption for *fragrances* specified under Method 310.

3.13 *Inhalation Toxicity. The product shall meet either 3.13.1 or 3.13.2.

3.13.1 Chronic Inhalation Toxicity. The *product as used* shall not contain *components* at 0.01% or more with a vapor pressure above 1 mm mercury at 1 atm pressure and 20° C that are classified as producing significant toxic effects in mammals from repeated inhalation exposure at or below 1.0 mg/L as a vapor according to Organization for Economic Co-operation and Development (OECD) Harmonized Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances and Mixtures. For the purposes of this standard, significant toxic effects in mammals from repeated inhalation exposure at or below 1.0 mg/L as a vapor shall be established by a No-Observed Adverse Effect Level (NOAEL), based on a test duration of 90 days at 6 hours per day; values from other exposure regimes shall be estimated (extrapolated) per the principles of *Haber's rule*. In lieu of a NOAEL, the Lowest-Observed Adverse Effect Level (LOAEL) can be used with a ten-fold safety factor (i.e., LOAEL/10).

3.13.2 Chamber Testing. A *product as used* shall be tested according to the method used for the GREENGUARD Children and Schools Certification for Cleaners and Cleaning Maintenance Products and Systems (also called the GREENGUARD Standard Method for Measuring and Evaluating Chemical Emissions from Cleaners and Cleaning Maintenance Systems Using Dynamic Environmental Chambers) and meet the inhalation toxicity criteria in the method (noted in the table referencing Green Seal Standard GS-37).

3.14 *Toxicity to Aquatic Life. The *product as used* shall not be toxic to aquatic life. A product is considered not toxic to aquatic life if the lowest available and most representative acute LC_{50} data for fish, daphnia, or algae is greater than or equal to 100 mg/L. For purposes of demonstrating compliance with this requirement, data for each of the product's *components* at 0.01% or more in the *product as used* may be used to calculate a weighted average (as in section 3.3).

The preferred sources of data come from the following appropriate protocols in the International Organization for Standardization (ISO) 7346-2 for fish, OEDC Test Guidance (TG) 203 for fish, OECD TG 202 for daphnia, or OECD TG 201 for algae.

3.15 *Aquatic Biodegradability. Each of the individual *organic compounds* at 0.01% or more in the *product as used* shall exhibit ready biodegradability in accordance with the OECD definition, except for polymers. Biodegradability shall be measured according to any of the following methods: ISO 7827, 9439, 10707, 10708, 9408, 14593; OECD Methods 301A – F; or OECD 310. Specifically, within a 28-day test, the *organic compound* shall meet one of the following criteria within 10 days of the time when biodegradation first reaches 10%:

- Removal of DOC > 70%
- BOD > 60%
- % of BOD of ThOD > 60%
- % CO_2 evolution of theoretical > 60%

Per OECD guidance the 10-day window requirement does not apply to structurally-related *surfactant* homologues. For *organic compounds* at 0.01% or more in the *product as used* that do not exhibit ready biodegradability in these tests the manufacturer may demonstrate biodegradability in sewage treatment plants using the Coupled Units Test found in OECD 303A by demonstrating DOC removal > 90%.

An exception shall be made for *organic compounds* that do not exhibit ready biodegradability, if the compound has low aquatic toxicity (acute $LC_{50} \geq 100$ mg/L for algae, daphnia, or fish) and exhibits inherent biodegradability per ISO test methods 9887 or 9888 or OECD 302A-C.

3.16 *Bioaccumulating Compounds. The *product as used* shall not contain any *components* at 0.01% or more that bioaccumulate or that are known to form degradation products that bioaccumulate. A chemical is considered to bioaccumulate when it has a bioconcentration factor (BCF) $\geq$ 500 (or log $K_{ow} \geq 4$). The preferred source of data is from OECD TG 305 (for BCF). If the chemical meets the requirement for biodegradability, 3.15 herein, it may be considered to not bioaccumulate.

3.17 *Chronic Aquatic Toxicity. The product *as used* shall not contain any *components* at 0.01% or more that have *chronic aquatic toxicity*.

3.18 *Eutrophication. The product *as used* shall not contain phosphorus at more than 0.5% by weight.

3.19 Prohibited Components. The *undiluted* product shall not contain the following *components*[9]:

[9] The listed ingredients are prohibited because they have demonstrated one or more of the following health concerns: endocrine disruption, neurotoxicity, and systemic toxicity. Other chemicals may have such health concerns but are not listed because they may already be prohibited through other criteria in the standard.

- 2-butoxyethanol
- Alkylphenol ethoxylates
- *Halogenated organic solvents*
- Heavy metals, including: lead, hexavalent chromium, or selenium; either in the elemental form or compounds
- Nitro-musks
- o-Phenylphenol
- *Ozone depleting compounds*
- Phthalates
- Polycyclic musks
- Toxic Release Inventory Persistent, Bioaccumulative, and Toxic (TRI PBT) Chemicals
- Triclosan

3.20 *Combustibility. The *undiluted product* shall not be combustible. The product or 99% by volume of the product c*omponents* at 0.01% or more in the *undiluted product* shall have a flashpoint above 150°F, as tested using either the Cleveland Open Cup Tester (ASTM D92-05a), the Abel Closed-Cup method (ISO 13736), or the Pensky-Martens Closed-Cup method (ISO 2719). Alternatively, the product shall not sustain a flame when tested using ASTM D 4206 Standard Test Method for Sustained Burning of Liquid Mixtures Using the Small Scale Open-Cup Apparatus.

3.21 *Fragrances. All *fragrances* used shall be produced and handled following the code of practice of the International Fragrance Association (IFRA).

3.22 Color Components. Each *color component* shall meet one of the following:

- Be certified by the U.S. Food and Drug Administration (FDA) and permitted for ingestion
- Be a *natural color component*
- Not have any of the following heavy metals intentionally added: arsenic, cadmium, cobalt, hexavalent chromium, lead, manganese, mercury, nickel, and selenium

3.23 Optical Brighteners. The *undiluted product* shall not contain any *components* at 0.01% or more that are *optical brighteners*.

3.24 Concentrates and Dosing. The following products may be sold in a ready-to-use form:

- *Adhesive remover products*
- *Boat wax, polish, sealant or glaze products*
- *Chewing gum remover products*

- *Dishwasher cleaning products*
- *Electronic cleaning products*
- *Furniture polish products*
- *Graffiti remover products*
- *Leather cleaning products*
- *Metal cleaning products*
- *Motor vehicle dressing products*
- *Motor vehicle wax, polish, sealant, or glaze products* for hand detailing
- *Optical lens cleaning products*
- *Oven cleaning products*
- *Printing press cleaning products*
- *Pressurized gas duster products*
- *Rust stain remover products*
- *Upholstery cleaning products* solely labeled as spot or stain removers
- *Waterless motor vehicle cleaning products*

All the other products shall be concentrated to at least the following:

Product Category	Concentration Requirement
Boat cleaning products	1:64
Motor vehicle cleaning products	1:100
Motor vehicle wax, polish, sealant, or glaze products for conveyor, rollover, in-bay automatic and self-service car washes	1:100
Deck, siding, or outdoor furniture cleaning products	1:32
Hand and *automatic dish cleaning products*	1:200
Rinse agent products	1:400
Tire and wheel cleaning products	1:4
Dusting aid products	1:4
All other products	1:16

3.25 *Products Containing Enzymes. Products that contain *enzymes* shall meet all Annex C criteria.

3.26 *Products Containing Microorganisms. Products that contain *microorganisms* shall meet all Annex D criteria.

3.27 *Antimicrobial Agents. Except for *antimicrobial pesticide products*, the use of *antimicrobial agents* for the purposes other than preservation or stabilization of the product is prohibited. Documentation or test results shall be provided to the certification program demonstrating the dosage necessary to preserve the product.

4.0 MANUFACTURING SUSTAINABILITY REQUIREMENTS

4.1 *Good Manufacturing Practices. *Good manufacturing practices* **(***GMPs*) shall be followed including, but not limited to, practices for the building and facility, equipment, personnel, raw materials, production, laboratory, labeling, records, and complaints.

4.2 *Energy, Water, Air, and Waste. The following information shall be reported for the manufacturing processes included in the converting of the raw materials into the finished product (excluding the production of raw materials and package – it is a gate-to-gate report) on an annual basis or when any changes are made to the processes, with alternate reporting units acceptable upon approval by the certification program:

Report	Units
Energy	millions of British thermal unit (BTU)/ton of product
Water	gallons/ton of product
Air Emissions	regulated air pollutant tons/ton of product
Solid Waste	dry ton/ton of product

4.3 *Distribution. To the extent feasible, the distance and mode of transportation of raw materials (including packaging) and finished products shall be documented[10].

4.4 *Social Responsibility. Documentation shall be provided that the production of the product meets the following social responsibility requirements:

4.4.1 Freedom of Association and Collective Bargaining. Workers shall have the right to join or form trade unions of their own choosing and their right to bargain collectively shall be recognized and respected. An exception shall be made for inmate workers.

4.4.2 Freedom of Labor. There shall not be forced or bonded labor or use of *child labor*.

4.4.3 Freedom from Discrimination. There shall not be discrimination in terms of race, color, sex, religion, age, disability, gender, marital status, sexual orientation, union membership, political opinion, national extraction or social origin such that it affects the opportunity or treatment in employment and there shall be no support or tolerance of corporal punishment, physical or verbal coercion, sexual or other harassment, intimidation or exploitation.

[10] It is expected that this includes at least the mode of transportation from the manufacturing facility.

4.4.4 Occupational Health and Safety. A safe and hygienic workplace environment shall be provided with access to potable water. Adequate steps shall be taken to minimize the hazards of the workplace and workers shall receive health and safety training to prevent accidents and injury.

4.4.5 Conditions of Employment. Workers shall work under fair conditions of employment. Wages, working hours and overtime shall meet at a minimum the national legal or industry benchmark standard and regular employment shall be provided.

5.0 PACKAGING SUSTAINABILITY REQUIREMENTS

5.1 Plastic Package. A plastic *primary package* shall be one of the following[11]:

- A *source-reduced package*
- *Recyclable*
- Contain 25% *post-consumer material*
- A *refillable package* with an effective *take-back program*
- An alternative approach that has been independently proven to have a similar life cycle benefit as at least two of the above approaches for a substantial majority of communities may be acceptable.

5.2 Non-Plastic Package. For materials other than plastic, the *primary package*, shall contain at least 25% *post-consumer material* or demonstrate that efforts were made to use the maximum available *post-consumer material* in the package and shall be *recyclable*.

5.3 *Concentrated Product Packaging. *Concentrates* are prohibited from being packaged in spray-dispenser bottles, disposable wipes, or other ready-to-use package types.

5.4 Aerosol Packaging. *Aerosol packaging* shall meet the following:

- Manufacturers shall demonstrate that recycling programs for *aerosol packaging* are available to a substantial majority of communities where the product is sold
- Manufacturers shall provide documentation establishing why *aerosol packaging* is necessary for a given product addressing environmental, health, and performance considerations

[11] For products sold in a ready-to-use format, there is currently no requirement for product refills, however, Green Seal encourages that efforts be taken to provide product refills in concentrate (with explicit instructions for safe dilution and use), a source reduced package, or in another manner that minimizes resources used in the packaging and transport of product refills.

- *Aerosol packaging* propellant shall meet all of the product-specific sustainability requirements in section 3.0 herein and shall not be a *hazardous air pollutant* (HAP)
- For Section 3.3 Acute Toxicity and 3.13 Inhalation Toxicity, *aerosol packaging components* will be evaluated regardless of vapor pressure level
- The product contents from the nozzle to the point-of-delivery shall be in a form that does not contain any inhalable or respirable particles, such as but not limited to foams, or if the product contents are delivered in particle form the particles between 10-2.5 microns shall not comprise more than 1% of the total particles and no particles shall be below 2.5 microns

5.5 *Disposable Wipes. Products that are sold in a ready-to-use format may contain disposable towelettes or other disposable wiping materials if the wipes are made from 100% *renewable materials* and meet the state-of-the-art amount of recovered material content.

5.6 *Heavy Metal Restrictions. Heavy metals, including lead, mercury, cadmium, and hexavalent chromium, shall not be *intentionally introduced*. Further, the sum of the concentration levels of these metals present shall not exceed 100 parts per million by weight (0.01%); an exception is allowed for refillable packages or packages that would not exceed this maximum level but for the addition of post-consumer materials. *Intentional introduction* does not include the use of one of the metals as a processing aid or intermediate to impart certain chemical or physical changes during manufacturing, where the incidental retention of a residual of that metal in the final packaging or packaging *component* is not desired or deliberate, if the final packaging or packaging *component* complies with the incidental concentration restrictions of 100 ppm.

5.7 *Other Restrictions. Phthalates, bisphenol A, and chlorinated packaging material are prohibited from being *intentionally introduced*; an exception is allowed for packages that would not have added phthalates, bisphenol A, or chlorinated packaging material but for the addition of post-consumer material.

6.0 TRAINING AND LABELING REQUIREMENTS

6.1 Training Requirements. The product manufacturer, its distributor, or a third party shall offer training or training materials on the proper use of the product. This shall include applicable step-by-step instructions for the proper dilution and use, consequences of improper use or improper dilution, disposal of the product, and relevant use or maintenance of equipment, as well as recommended personal protection equipment for each stage of the product or equipment's use. Product manufacturers shall make the appropriate product and/or equipment training information, including SDSs and technical data sheets,

available electronically as well as in hard copy. *Direct release products* shall include instructions describing best management practices for recapture of waste water (such as choosing a site with the potential for runoff to be diverted to a sanitary sewer or detention pond)[12]. *Boat cleaning products* and *bilge cleaning products* shall be labeled with explicit instructions that bilges should be pumped out at marina facilities and not overboard and that the boat should be cleaned away from shorelines.

6.2 Label Language. The product label shall include English and another language or English and a graphical representation or icons.

6.2.1 Label Dilution or Dosage Directions for Concentrates. For *concentrates*, the manufacturer's label shall state clearly and prominently that dilution with water from the unheated tap is recommended, unless tested otherwise to meet the performance requirements in Section 2.0 herein (e.g., *upholstery cleaning products*, *motor vehicle cleaning products*, and *dish cleaning products)*, and shall state the recommended level of dilution or dosage (e.g., for products that use manual dilution or dosage, state amount of product in common and measurable terms such as milliliters, ounces, teaspoons, or capfulls.

6.2.2 Label Use and Disposal Directions. The product label shall have explicit disposal, recycling, reuse, or refill instructions, proper and clear directions for use, and appropriate precautions and recommendations for the use of personal protective equipment.

6.3 Labeling of Dish Cleaning Products for Resource Conservation.

6.3.1 Hand Dish Cleaning Product. The *hand dish cleaning product* label shall include a statement encouraging energy and water conservation during the use of the *hand dish cleaning product*, such as, "Conserve energy and water and avoid running the water continuously when washing dishes," or equivalent language as approved by the certification program.

6.3.2 Automatic Dish Cleaning Product. *Automatic dish cleaning product* labels shall include a statement encouraging energy and water conservation, such as, "Conserve energy and water and run a full load of dishes whenever possible," or equivalent language as approved by the certification program.

6.4 * Antimicrobial Claims. Except for *antimicrobial pesticide products*, antimicrobial, antibacterial, *disinfecting*, or *sanitizing* product claims are prohibited.

[12] This applies only when the use-scenario may result in a direct release of wash water effluent (e,g., mobile car washers and detailers), but not to those facilities required by law to capture and treat effluent prior to discharge (e.g., commercial car wash and fleet maintenance facilities).

6.4.1 Products Making Antimicrobial Claims. *Antimicrobial pesticide products* shall have label instructions that the product should only be used on surfaces that have been identified to be at risk for disease transmission or where required by regulation. Equivalent language may be approved by the certification program.

6.4.2 Minimum Risk Pesticides. *Minimum risk pesticide* labels shall include a statement indicating that a pre-cleaning step is needed for heavily soiled surfaces.

6.5 *Plastic Labeling. If plastic, the packaging shall be marked with the appropriate Society of the Plastics Industry symbol to identify the type of plastic for recycling. If the symbol is in a conspicuous location, the appropriate qualification of recyclability is required such as "this product may not be recyclable in your areas, see if accepted by your local program," "only a few communities accept this package for recycling, check with your local program," or equivalent language as approved by the certification program.

6.6 *Organic Claims. Organic claims shall only be based on *certified-organic component* content and shall be supported with documentation that they meet the United States Department of Agriculture (USDA) National Organic Program (NOP) or programs determined to be equivalent by or have recognition agreements with the USDA NOP.

6.7 *Natural and Biobased Claims. Only the following natural and biobased, or related, claims are allowed when the product meets the criteria outlined:

- "100 percent Natural", "All Natural", "100 percent Biobased", or "All Biobased" shall only contain *natural* or *biobased components*, respectively, excluding water, and with no petroleum, silicone, or *synthetic components*.
- "Natural" or "Biobased" products shall contain 95% *natural*, *naturally-derived*, or *biobased components*, respectively, excluding water, and with no petroleum, silicone, or *synthetic components*.
- Claims on specific product *components* being "natural" or "biobased" may be permitted if it is a *natural* or *biobased component*.

6.8 * Ingredient Line. The product label shall list the product ingredients using the naming convention of the International Nomenclature of Cosmetic Ingredients (INCI) in order of predominance. Where an INCI name does not exist for an ingredient, alternative nomenclature may be used[13]. Ingredients in concentrations of less than 1% may be listed in any order after those in

[13] Alternative nomenclature may include International Union of Pure and Applied Chemistry (IUPAC) name, Chemical Abstract Service (CAS) name, Consumer Specialty Products Association (CSPA) Dictionary name, and or the common chemical name.

concentrations of more than 1%. The general term 'fragrance' may be used for *fragrance components*, however a list of *fragrance components* shall be made available to end-users in an easily accessible means, such as the company website, IFRA website, or technical data sheet. A chemical function or chemical class descriptor may be used to protect trade secret information.

6.8.1 *Consumer and User Communication. The product ingredient line (6.8 herein) shall be made available to end-users in an easily accessible means in addition to the product label, such as the company website or technical data sheet.

6.9 *Fragrance and Allergen Labeling. Products shall declare on the SDS "fragrance added" if a *fragrance* has been added or "no fragrance added" if no fragrance has been added. The product label and SDS shall also indicate any *allergen components* in the product (e.g., "Contains allergen [*allergen's* INCI name]").

6.10 pH Declaration. Products shall declare the pH of the product, both the *undiluted product* and the *product as used*, on the SDS.

6.11 *Statement of Basis for Certification. Whenever the product claims to be certified to this standard, it shall be based on a *third-party certification program* with an on-site auditing program, and shall state, unless otherwise approved in writing by Green Seal:

> This product meets the Green Seal™ Standard for Specialty Cleaning Products for Industrial and Institutional Use, GS-53, by avoiding ingredients that are toxic or harmful to humans and the environment and efficient use of packaging material.

If the *closed dilution-control system* product was evaluated in accordance with Annex B, the description shall read as follow:

> "This product meets the Green Seal™ Standard for Specialty Cleaning Products for Industrial and Institutional Use, GS-53, by avoiding ingredients that are toxic or harmful to humans and the environment and efficient use of packaging material, with acute toxicity and/or skin and eye corrosion met at the as-used dilution". [whichever health criteria apply to the product]

ANNEX A – Normative

Definitions of Terms

(note that the defined terms are italicized throughout the standard)

Adhesive Remover Product. A product intended for the purpose of removing adhesive from either a specific substrate or a variety of substrates. For the purposes of this standard this includes general purpose adhesive remover, floor or wall covering adhesive remover, gasket or thread locking adhesive remover and other specialty adhesive removers. This does not include products that remove adhesives intended for use on humans or animals.

Aerosol Packaging. A *package* that requires a pressurized propellant to dispense product through a nozzle.

Air Freshener. A product designed or labeled for the purpose of masking odors, freshening, scenting, or deodorizing the air.

Allergen. Allergenic substances listed by the European Commission Directive 76/768/EEC, 27 July 1976 on the Approximation of the Laws of the Member States relating to Cosmetic Products (also known as the Cosmetic Directive) in Annex III and those listed by the FDA (including food allergens Food Allergen Labeling and Consumer Protection Act of 2004 (Public Law 108-282, Title II).

Antimicrobial Agent. A substance intended to disinfect, sanitize, reduce, or mitigate growth or development of *microorganisms* and protect inanimate objects, industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae, or slime.

Antimicrobial Pesticide Product. An *EPA-registered antimicrobial pesticide product* or a *minimum risk pesticide* product intended for and capable of *disinfecting*, *sanitizing*, reducing, or mitigating growth or development of *microorganisms* and protecting inanimate objects, industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae, or slime.

Asthma. *Asthma* is a chronic inflammatory disorder of the airways that impairs breathing. *Asthma* affects children and adults, may be intermittent or persistent, and is further classified as mild, moderate, or severe. The chronic inflammation associated with variable airflow obstruction commonly causes difficulty breathing, coughing, wheezing, shortness of breath, and/or chest pain. Symptoms may resolve completely between active episodes. Symptoms may occur during exposure, immediately after exposure, or up to 24 hours later in a "late phase," frequently interrupting sleep.

Asthmagen. A substance designated as an *asthma*-causing agent by the Association of Occupational and Environmental Clinics (AOEC), which after review by AOEC have met the AOEC sensitization criteria**.**

Automatic Dish Cleaning Product. A product intended to clean dishes, utensils, pots, pans, glasses, cups or other food service tools for use automatic dishwashers operated in institutional establishments.

Bilge Cleaning Product. A product intended to clean the lowest interior compartment in a boat.

Biobased. The content of a product that is from biological products or *renewable materials*, forestry, or agricultural materials (including plant, animal, and marine materials)**.**

Boat Cleaning Product. A product designed to clean aluminum, fiberglass, and wood surfaces of boats. These products are designed to remove algae and marine residues, grease and rust.

Boat Wax, Polish, Sealant, or Glaze Product. A product designed to seal out moisture, increase gloss, or otherwise enhance a boat's surface. For the purposes of this standard, products that are intended as wash and wax products are considered *boat vehicle wax, polish, sealant, or glaze* and *boat cleaning products***.**

Carcinogen. A substance listed as a known, probable, reasonably anticipated, or possible human carcinogen by any of the following agencies or programs: International Agency for Research on Cancer (IARC Groups 1, 2A, and 2B); National Toxicology Program (NTP Groups 1 and 2); U.S. Environmental Protection Agency Integrated Risk Information System (EPA IRIS weight-of-evidence classifications A, B1, B2, C, carcinogenic, known/likely human carcinogen, likely to be carcinogenic to humans, and suggestive evidence of carcinogenicity or carcinogen potential); Occupational Safety Health Administration (OSHA as *carcinogens* under 29 Code of Federal Regulations (CFR) 1910.1003(a)(1)); and those chemicals that fall into Carcinogenicity Hazard Category 1A and 1B under the *Globally Harmonized System of Classification and Labeling of Chemicals (GHS).*

Certified-Organic Components. A *component* certified as organic (by meeting the USDA organic standards) by a USDA-accredited certifying agent or programs determined to be equivalent by or have recognition agreements with the USDA NOP.

Chewing Gum Remover Product. A product designed to remove chewing gum from floors, carpets, furniture, and upholstery.

Child Labor. Work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. To avoid *child labor* the International Labour Organization (ILO) provides the following instruments:

Minimum Age Convention (e.g., a minimum age not less than 15 and 18 for hazardous work) and the Worst Forms of Child Labour Convention.

Chronic Aquatic Toxicity. Long-lasting adverse effects to aquatic organisms. Substances that are classified as long-term hazards to the aquatic environment are in hazard categories 1 through 4 (H410 through H413) under the *GHS*.

Closed Dilution-Control System. Systems that control the dilution of a *concentrate* product so that the *undiluted product* cannot be practically accessed by users.

Colony Forming Unit (CFU). A measure of bacteria concentration assuming that each bacterium is capable of forming a colony.

Color Component. A product *component*, such as a dye or pigment, whose only function is to change the product's color.

Component. A deliberate addition to the product added at any level or a contaminant that was not deliberately added but is known to be present above 0.01% (100 parts per million), by weight, in the product. Naturally occurring elements and chlorinated organics, which may be present as a result of chlorination of the water supply, are not considered components if the concentrations are below the applicable maximum contaminant levels in the National Primary Drinking Water Standards found in 40 CFR Part 141.

Concentrate. A product, as sold that must be diluted by water prior to its intended use.

Critical Medical Devices. An item used in medical procedures that confers a high risk for infection if it is contaminated with any microorganism. This includes objects that enter sterile tissue or the vascular system, which must be sterile, including, but not limited to: surgical instruments, cardiac and urinary catheters, implants, and ultrasound probes used in sterile body cavities.

Deck, Siding and Outdoor Furniture Cleaning Product. A product intended to remove common soils from outdoor surfaces including wooden, brick, concrete, or stone decks, patios, furniture, siding, and fences.

Direct Release Product. A product that are intended for use outdoors that are likely to bypass sewage treatment with a high likelihood of being discharged directly to storm sewers or the aquatic environment, shortening the time for degradation prior to entering sensitive environments. This may include, but is not limited to, *motor vehicle cleaning products, boat cleaning products, deck, siding, and outdoor furniture cleaning products* and *graffiti removers*. For the purposes of this standard *motor vehicle windshield washing fluid* is not considered a direct release product.

Dish Cleaning Product. A product intended to clean dishes, utensils, pots, pans, glasses, cups, and other food service tools in household settings. This includes *automatic dish*

cleaning product and *hand dish cleaning products* and for the purposes of this standard it also includes *rinse agent agents* used in automatic dishwashers.

Disinfecting. Destroying or irreversibly inactivating infectious *microorganism*s but not necessarily their spores on inanimate objects or surfaces.

Dusting Aid Product. A product designed or labeled to assist in removing dust and other soils from floors and other surfaces without leaving a wax or silicone based coating.

Electronic Cleaning Product. For the purposes of this standard, this includes electronic and electrical cleaners included in the CARB Consumer Product Regulation. Electronic cleaning products are designed and labeled for the removal of dirt, moisture, dust, flux, or oxides from the internal components of electronic or precision equipment such as circuit boards, and the internal components of electronic devices, including but not limited to, radios, compact disc (CD) players, digital video disc (DVD) players, and computers. Electrical cleaning products are designed and labeled to remove heavy soils such as grease, grime, or oil from electrical equipment, including, but not limited to, electric motors, armatures, relays, electric panels, or generators.

Enzyme. A protein that acts as a catalyst in biochemical reactions. Each enzyme is specific to a particular reaction or group of similar reactions.

EPA-Registered Antimicrobial Pesticide Product. *An antimicorbial pesticide product* registered with the EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA, 7 U.S.C. 136) or registered with Health Canada's Pesticide Management Regulatory Agency (PMRA).

Fragrance. An additive, often (but not limited to) a multi-*component* additive, used in a product with the purpose of imparting or neutralizing a scent in the product.

Furniture Polish Product. A product used for cleaning and improving the appearance of furniture finishes. It does not include products designed solely for the purpose of cleaning or dusting, floor polish products, or products designed to leave a permanent finish (e.g., stains, finishes).

General Purpose Cleaning Product. A product used for routine cleaning of hard surfaces, including impervious flooring such as concrete, stone surfaces, or tile. This does not include cleaning products intended primarily for the removal of rust, mineral deposits, or odors. This does not include products intended primarily to strip, polish, or wax floors, and it does not include cleaning products intended primarily for cleaning dishes, laundry, toilets, restrooms, glass, carpets, upholstery, wood, or polished surfaces, nor does it include biological cleaning products. Another term used for these cleaning products may be multi-surface cleaning products. For the purposes of this standard this

definition applies to any product containing *microorganisms* or *enzymes* that is marketed as a general-purpose cleaning product.[14]

Genetically Modified Microorganism (GMM). A *microorganism* in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination. The methods or techniques by which *GMM* are produced are listed by the European Commission Directive 2009/41/EC on the Contained Use of Genetically Modified Microorganisms.

Globally Harmonized System ofClassification and Labeling of Chemicals (GHS). The GHS established hazard classes and means for classifying substances; classification based on these hazard classes has been listed by the European Chemicals Agency (ECHA) and the ex-European Chemicals Bureau (ex-ECB), or is disclosed on a Safety Data Sheet (SDS).

Good Manufacturing Practices (GMP). Incorporation of quality practices and procedures, such as those included in the Food and Drug Administration's (FDA) Inspection Operations Manual, to minimize the risk of adulterated or misbranded products.

Graffiti Remover Product. A product used to remove graffiti markings (spray paint, ink, marker, crayon, lipstick, nail polish, or shoe polish) from masonry and a variety of non-cloth or non-fabric substrates. Products labeled for use as both a paint remover and graffiti remover are included, however products labeled for use only as paint removers are not included.

Haber's Rule. For a given toxic gas, the concentration of the gas multiplied by the duration of exposure equals a constant ($C \times t = k$); for example, doubling the concentration will halve the time for a given toxic effect.

Hand Dish Cleaning Product. A product labeled and intended for manual washing of dishes, utensils, pots, pans, glasses, cups, and other food service tools.

Halogenated Organic Solvents. An organic solvent containing halogens, including, but not limited to, fluorine, chlorine, bromine, astatine, and iodine.

Hazardous Air Pollutant (HAP). A substance listed by the EPA in the Clean Air Act Section 112(b) (1) as a hazardous air pollutant.

Industrial and Institutional Use. Use of products that are typically sold to cleaning professionals for cleaning of commercial or institutional facilities. This typically includes, but is not limited to cleaning government agencies, factories, sanitariums, prisons, restaurants, hotels, stores, automobile service and parts centers, health clubs, theaters, transportation companies, hospitals, schools, libraries, auditoriums, office

[14] General-purpose cleaning products for industrial and institutional use are included in the scope of the Green Seal Standard for Industrial and Institutional Cleaning Products, GS-37.

complexes, and similar properties where any residential areas and common/public space are typically cleaned by professionals (e.g., in-house or contract service providers rather than when the residents are responsible for cleaning tasks).

Intentional Introduction. The act of deliberately utilizing a material in the formation of a package or packaging *component* where its continued presence is desired in the final package or packaging *component* to provide a specific characteristic, appearance, or quality.

Leather Cleaning Product. A product designed to clean or improve the appearance of leather.

Metal Cleaning Product. A product designed primarily to improve the appearance of finished metal, metallic, or metalized surface (e.g., steel or aluminum surfaces) by physical or chemical action. Products marketed as suitable for cleaning soils in production and maintenance applications are included in the GS-34 standard for Cleaning and Degreasing Agents and are not included in this product category unless they include *microorganisms* or *enzymes* at greater than 0.01% of the formulation.

Microorganism. An organism that cannot be seen by the naked eye (microscopic organisms) including, but not limited to, bacteria, fungi, archaea, and protists. Also included in this category are viruses or virus-like particles, although they are generally regarded as non-living.

Minimum Risk Pesticide. A special class of *antimicrobial pesticide products* that are not subject to federal registration requirements through the EPA because they meet specific requirements under section 25(b) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), including, but not limited to, that the *components*, both active and inert, are demonstrably safe for the intended use.

Motor Vehicle Cleaning Product. A detergent, shampoo, rinse, or multipurpose cleaning product used to clean and maintain the exterior surfaces of cars, trucks, motorcycles, recreational vehicles, trains, aircrafts, and other motor vehicles. This includes, but is not limited to, products designed for use in fleet maintenance, professional conveyer and rollover car washes, in-bay automatic washes, self-service car washes, repair shops, commercial tuck washing or large vehicle stations, and professional hand detailing. For the purposes of this standard, *tire and wheel cleaning products* are separate from motor vehicle cleaning products.

Motor Vehicle Dressing Product. A product designed to enhance gloss and create a protective barrier on internal and external rubber, vinyl, and plastic surfaces of motor vehicles.

Motor Vehicle Windshield Washing Fluid Product. A *motor vehicle cleaning product* designed or labeled for use in a motor vehicle windshield washer fluid system for the

purpose of cleaning, washing, bug removal, or wetting the windshield. Winter formula products include *components* to depress the freezing point.

Motor Vehicle Wax, Polish, Sealant, or Glaze Product. A product designed to seal out moisture, increase gloss, or otherwise enhance a motor vehicle's painted surfaces and includes, but is not limited to, rubbing and polishing compounds, instant detailer, and hard paste wax. This includes, but is not limited to, products designed for use in fleet maintenance, professional conveyer and rollover car washes, in-bay automatic washes, self-service car washes, repair shops, commercial tuck washing or large vehicle stations, and professional hand detailing. Products designed for use on unpainted surfaces such as bare metal, chrome, glass, or plastic are excluded. For the purposes of this standard, products that are intended as wash and wax products are considered both *motor vehicle wax, polish, sealant, or glaze products* and *motor vehicle cleaning products***.**

Mutagen. A substance designated as known to induce, be regarded as if they induce, or which cause concern for humans owing to the possibility that they may induce heritable mutations in the germ cells of humans and thus meet the criteria for germ cell mutagenicity hazard categories 1 and 2 (H340 and 341) under the *GHS*.

Natural Color Component. A *color component* that comes from biological products or *renewable materials*, forestry or agricultural materials (including plant, animal, and marine materials), or minerals.

Natural Component. A *components* that comes from materials found in nature including mineral, forestry, agricultural, or biological materials such as, but not limited to, animal products produced by the animal but not part of the animal; do not contain petroleum or petroleum-derived compounds; do not contain transgenic hybrid organisms (inserted deoxyribonucleic acid (DNA) that originated in a different species); have been processed without irradiation; and are not chemically altered.

Naturally-Derived Component. A *component* that is partially chemically altered without petroleum *components* and have been minimally processed such that they not be altered to such an extent that they are substantially less biodegradable or more toxic (examples of potentially acceptable processes are included in Appendix 2).

Neurotoxin/Systemic Toxin. A substance designated as producing a specific target organ toxicity arising from either single exposure or repeated exposure and meets the criteria for hazard categories 1 or 2 (H370, H371, H372, H373) under the *GHS* or R48 danger of serious damage to health by prolonged exposure.

Odor Remover Product. A product designed or labeled to inhibit the ability of soils to create malodors, or functions to entrap, encapsulate, neutralize, convert, or eliminate malodor molecules through a physio-chemical process that is not simply masking or overpowering odors.

Optical Brightener. An additive designed to enhance the appearance of colors and whiteness in materials by absorbing ultraviolet radiation and emitting blue radiation. These compounds are also known as fluorescent whitening agents**.**

Optical Lens Cleaning Product. A product designed to remove oil, grease, and other common soils from exposed hard surfaces of optical equipment including glasses, photography equipment, and microscopes. Cleaning products for contact lenses are excluded.

Organic Compound. Any member of a large class of chemical compounds whose molecules contain carbon, with the exception of carbides, carbonates, cyanides, diamond and graphite.

Oven Cleaning Product. A product intended for use in removing organic soil from metallic or porcelain surfaces of ovens, barbeques, fryers, and grills.

Ozone-Depleting Compound. A compound with an ozone-depletion potential greater than 0.01 (Chloroflourocarbon - CFC 11=1) according to the EPA list of Class I and Class II Ozone-Depleting Substances, or any substances or mixtures falling into category 1 (H420), hazardous to the ozone layer, under the *GHS*.

Package. This includes the *primary package* used for the product.

Pathogenic Microorganism. For the purposes of this standard this includes coliforms, *Escherichia coli*, *Salmonella*, *Staphylococcus aureus*, *Pseudomonas aeruginosa,* and yeasts and molds.

Post-Consumer Material. Material that would otherwise be destined for solid waste disposal, having completed its intended end-use and product life cycle. Post-consumer material does not include materials and by-products generated from, and commonly reused within, an original manufacturing and fabrication process.

Pressurized Gas Duster Product. A pressurized product labeled to remove dust from a surface solely by means of mass air or gas flow, including surfaces such as photographs, photographic film negatives, computer keyboards, and other types of surfaces.

Primary Package. *Package* material that physically contains and contacts the product, not including the cap or lid.

Printing Press Cleaning Product. A product designed to remove loosely held uncured inks uncured coatings and contaminants from ink application equipment.

Product As Used. The most concentrated form of the product that the manufacturer recommends for a product's intended use. For example, if a manufacturer recommends a product be diluted 1:64 or 2:64 for use, the product shall meet the health and environmental requirements at a dilution of 2:64.

Recyclable. The package can be collected in a substantial majority of communities, separated or recovered from the solid waste stream and used again, or reused in the manufacture or assembly of another package or product through an established recycling program.

Refillable Package. A *package* that is routinely returned to and refilled by the product manufacturer at least five times with the original product held by the *package*, and demonstrated in practice. For the purpose of this standard, the product manufacturer or the product manufacturer's agent may refill a *package*.

Renewable Material. A material that is rapidly generated in nature including, but not limited to, agricultural products and biomass like cellulosic materials.

Reproductive Toxin. A substance listed as a reproductive toxin (including developmental, female, and male toxins) by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (California Code of Regulations, Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, et. Seq., also known as Proposition 65); or a substance designated as Category 1 (H360), known or presumed reproductive toxicant, or Category 2 (H361), suspected human reproductive toxicant, or having adverse effects on or via lactation (H362), under the *GHS.*

Respiratory Sensitizer. A substance designated as Category 1 for *respiratory sensitization* (H334), leading to hypersensitivity of the airways following inhalation under the *GHS.*

Restroom Cleaning Product. A product used to clean hard surfaces in a restroom such as counters, walls, floors, fixtures, basins, tubs, toilets, urinals and tile. Other terms used for these cleaning products may include bathroom cleaning products, toilet bowl cleaning products, or urinal cleaning products. For the purposes of this standard this definition applies to any product containing *microorganisms* or *enzymes*, which is marketed as a restroom cleaning product.[15]

Rinse Agent Product. A product which is formulated to improve the drying effect and the appearance of articles cleaned by means of automatic dishwashers operated in institutional establishments.

Rust Stain Remover Product. A product designed to remove rust stains from a variety of surfaces including but not limited to, toilet bowls, toilet tanks, sinks, tubs, tile and showers, appliances, water softeners, and concrete and exterior walls. This product category includes water softener cleaners.

Sanitizing. Reducing, but not necessarily eliminating, *microorganisms* from the inanimate environment to levels considered safe as determined by public health codes or regulations.

[15] Restroom cleaning products for industrial and institutional use are included in the scope of the Green Seal Standard for Industrial and Institutional Cleaning Products, GS-37.

Semicritical Medical Devices. An item used in medical procedures that contacts mucous membranes or non-intact skin. This category includes respiratory therapy and anesthesia equipment, some endoscopes, laryngoscope blades, esophageal manometry probes, cystoscopes, anorectal manometry catheters, and diaphragm fitting rings.

Serious Eye Damage. The production of tissue damage in the eye, or serious physical decay of vision, following application of a test substance to the anterior surface of the eye, which is not fully reversible within 21 days of application. This includes substances identified under Category 1 for Serious Eye Damage/Eye Irritation (H318) under the *GHS.*

Skin Corrosion. The production of irreversible damage to the skin, namely visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours. Corrosive reactions are typified by ulcers, bleeding, bloody scabs, and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia, and scars. This includes substances designated as Category 1A, 1B or 1C for Skin Corrosion/Irritation (H314) under the *GHS*.

Skin Sensitizer. A substance that will lead to an allergic response following skin contact. Identified under Category 1 for skin sensitization (H317) under the *GHS.*

Specialty Cleaning Products. A product marketed and intended for specialized uses and *antimicrobial pesticide products.*

Spray Packaging. A *package* that dispenses the product through a nozzle and the product is in small droplets (i.e., a spray). It does not require a pressurized propellant to dispense the product.

Source-Reduced Package. A *package* that has at least 20% less material (by weight) compared to containers commonly used for that product type. For bag-in-the-box type packages, the box is included in the weight if the box is used during product use or in product merchandising.

Surfactant. A compound that reduces interfacial tension between two liquids or a liquid and a solid. This includes detergents, wetting agents, and emulsifiers.

Synthetic Component. A *component* created artificially rather than naturally or from *natural components*. For the purposes of this standard, *naturally-derived components* are not considered synthetic *components*.

Take-Back Program. A program sponsored by the original product manufacturer that has been demonstrated to receive at least 50% of sold *packages* for recycling or reuse.

Third-Party Certification Program. A program without any financial interest or stake in the sales of the product or service being certified, or other conflict of interest. There must be a standard to base the certification upon and the standard must be appropriate

and meaningful for its intended purpose. The standard must be publically available and developed with stakeholder input. Certification to the standard must be completed by an independent party (e.g., not the manufacturer of the product being certified), include site inspections, and have a monitoring program to verify ongoing compliance.

Tire and Wheel Cleaning Product. A *product* designed or labeled exclusively to clean either tires, wheels, or both. This includes, but is not limited to, products designed for use in fleet maintenance, professional conveyer and rollover car washes, in-bay automatic washes, self-service car washes, repair shops, commercial tuck washing or large vehicle stations, and professional hand detailing.

Toxic Release Inventory Persistent, Bioaccumulative, and Toxic (TRI PBT) Chemicals. The chemicals listed by the EPA on the Toxic Release Inventory as Persistent, Bioaccumulative and Toxic (PBT) Chemicals.

Undiluted Product. The most concentrated form of the product produced by the manufacturer for transport outside its facility.

Upholstery Cleaning Product. A product designed or labeled for the purpose of eliminating dirt or stains on objects upholstered or covered with fabrics such as wool, cotton, nylon, or other synthetic fabrics, including but not limited to products used on furniture.

Waterless Motor Vehicle Cleaning Product. A *motor vehicle cleaning product* that is not rinsed with water following application. For the purposes of this standard, products that are intended as waterless wash and wax products are considered both *motor vehicle wax, polish, sealant or glaze* and *waterless motor vehicle cleaning products***.** These products may also be known as spray and wipe products.

World Health Organization (WHO) Risk Group 1. Microorganisms that are unlikely to cause human or animal disease under the basis for classification defined by the World Health Organization in the Laboratory Biosafety Manual. In the case that a particular strain has conflicting risk group designations on various international lists, the most hazardous (highest level) designation will be utilized. The biosafety designation lists that will be consulted include:

- Australia/New Zealand
- Belgium
- Switzerland
- United Kingdom
- Germany
- United States Department of Health and Human Services, National Institutes of Health (NIH)
- European Commission
- Singapore
- Japan

ANNEX B – Normative

Closed Dilution-Control System. *Closed dilution-control system* products that meet all of the following requirements may be evaluated for acute mammalian toxicity (3.3) and skin and eye irritation (3.4) herein with the *product as-used* (rather than with the *undiluted product*).

A. Practically Inaccessible. The *primary package* shall not allow for access/exposure of the product during routine handling of the package, such as while transferring from shipping cartons, after opening a cap or lid, or when connecting to the dispensing system.

B. Spill Resistant. The *primary package* shall require coupling to a specially designed device in order to dispense product.

C. Drop Test. The *primary package*, with the lid on, shall be durable as demonstrated by passing the following drop test: drop the product from a height of 48 inches with 4 drops: flat-on-bottom, flat-on-top, flat-on-side, and corner; with passing results including that the packages must not leak, contents must be retained, and no damage to the outer package likely to adversely affect safety must be sustained.

D. Backflow Prevention. The product shall have backflow prevention included in the *closed dilution-control system* that meets the American Society of Sanitary Engineering's (ASSE) 1055B standard.

E. SDS. The product label and SDS shall include the applicable text “meets Green Seal’s requirements for acute toxicity and/or skin and eye corrosion at the as-used dilution”.

F. Certifier’s Web Site. The Web site of the certification program listing certified products shall identify which products were evaluated as-used, and which health criteria were evaluated as-used.

ANNEX C – Normative

Products Containing Enzymes. Products that contain *enzymes* shall meet all of the following:

A. Enzyme Form. *Enzymes* in the product shall be in liquid form or an encapsulated solid (or other dust-free solid) with a minimum diameter of 0.15 mm. Smaller diameters may be permitted for solid products if they are demonstrated to result in airborne *enzyme* concentrations equivalent to or less than encapsulated solids with a 0.15mm diameter.

B. Enzyme Source. The source from which *enzyme*s were derived shall be identified to a species level and disclosed to the certification program.

C. Enzyme Source Microorganisms. For *enzymes* derived from *microorganisms*, documentation shall be provided that the source *microorganism* is absent from the finished product. Test methodology and results shall be documented in sufficient detail and provided to the certification program. If the product does not conform to this provision, then all *microorganism*s shall meet the requirements in section Annex D herein.

D. Sensitization and Asthma. *Enzymes* are exempted from the requirements for *Asthmagens* (3.8) and *Respiratory Sensitization* (3.9) herein.

E. Spray Packaging. *Enzyme* products in *spray packaging*, or designed for use in *spray packaging* shall demonstrate airborne *enzyme* exposure for users below 1 ng/m^3 when sampling is conducted according to the protocol described in the international Association for Soaps, Detergents and Maintenance Products (AISE) document "Exposure measurements of *enzymes* of risk assessment of spray products."

F. Enzyme Labeling. Products containing *enzymes* shall declare clearly on the label and SDS, that the "product contains enzymes," in addition to the listing in the ingredient line.

G. Industrial Hygiene. Documentation shall be provided to the certification organization that demonstrates that the manufacturer has implemented an industrial hygiene plan intended to minimize concentrations of and exposure to airborne *enzymes* (e.g., engineering controls, work practices, and personal protective equipment) and monitor the air concentrations of the *enzyme/s* and worker illness/sensitization due to the *enzyme/s*. An example of best practices that may be applicable for this plan is available at AISE.

ANNEX D – Normative

Products Containing Microorganisms. Products that contain *microorganisms* shall meet all of the following with any specified testing conducted with an objective, scientifically-validated method under controlled and reproducible laboratory conditions (and appropriate testing details provided to the certification program):

A. Genetically Modified Microorganisms (GMM) in Microbial Products. The presence of *genetically modified microorganisms* **(**GMM) as *components* in finished products is prohibited.

B. Microorganism Biosafety. All *microorganisms* shall be classified as *World Health Organization* (*WHO) Risk Group 1* or equivalent biosafety designation. For strains that do not appear on any international biosafety designation lists, a full assessment of the human health, ecological, and environmental fate risks posed by the microorganism shall be provided to the certification program.

C. Microorganism Strain Identification. *Microorganism* strains shall be identified through a taxonomic review (e.g., genetic or phenotypic analysis) that is provided by a full-service culture collection listed with the World Federation of Culture Collections, whether or not the strain is part of the collection.

D. Absence of Contaminants. *Pathogenic microorganisms* shall not be present in the microbial strain, finished product, or at the end of the product's intended shelf life. Testing for the presence of *pathogenic microorganisms* shall be conducted according to the Joint FAO/WHO Expert Committee on Food Additives (JECFA) Combined Compendium of Food Additive Specifications standard microbiological analytical methods or comparable method and a Certificate of Analysis shall be provided to the certification program.

E. Effective Prevention Measures and Treatment. All microorganisms shall be demonstrated to be susceptible to the following prevention and treatment measures:

- Anti-microbial agents, as demonstrated by testing the microbial strain against an acceptable substance (i.e., an EPA general disinfectant, Center for Disease Control (CDC) low-level disinfectant, or a registered antimicrobial agent by Health Canada) in accordance with the EPA/OPP Standard Operating Procedure (SOP) or the AOAC International (AOAC) Use Dilution Method for Testing Disinfectants, SOP Number: MB-05-04
- Each of the five major antibiotic classes (aminoglycoside, macrolide, beta-lactam, tetracycline and fluoroquinolones), as demonstrated by testing the microbial strain in accordance with Beckman Dickinson BBL antimicrobial susceptibility disc method.

F. Microbial Count. A *microorganism* within a product shall have a plate count that is greater than or equal to $1x10^7$ *colony forming units* (*CFU*) per milliliter for liquid products and $1x10^9$ CFU per gram for solid products. A total plate count shall be conducted in accordance with the methods for microbiological analyses listed in the JECFA Combined Compendium of Food Additive Specifications or comparable method.

G. Spray Packaging. Products containing *microorganisms* in *spray packaging*, or designed for use in *spray packaging* shall demonstrate airborne *enzyme* exposure for users below 1 ng/m^3 when sampling is conducted according to the protocol described in the international Association for Soaps, Detergents and Maintenance Products (AISE) document "Exposure measurements of enzymes of risk assessment of spray products."
Products containing *microorganisms* in *aerosol packaging* shall not be in particle form.

H. Labeling Requirements. Products containing microorganisms shall include the following on the label and SDS:

- A declaration that the product contains microorganisms
- A statement that the product should not be used in patient areas of hospitals and that immune-compromised individuals should avoid exposure to products containing *microorganisms* from both direct use and incidental contact during or shortly after application to these products, especially when the treated areas are still wet
- Contact with open cuts or sores should be avoided
- Users should wash their hands after using the product
- Instructions that *microorganisms* may not be effective in the presence of *antimicrobial agents* such as chlorine bleach
- Instructions that the product shall not be used on food-contact surfaces
- Instructions that products containing *microorganisms* should not be sprayed directly into the air.

APPENDIX 1

Examples of products included and excluded in the scope of GS-53:

Industrial and Institutional Products Included in GS-53

- *Adhesive remover products*
- *Boat cleaning products* (e.g., hull or bilge)
- *Boat wax, polish, sealant, or glaze products*
- *Chewing gum remover product*
- *Deck, siding and outdoor furniture cleaning products*
- *Dish cleaning products*(e.g.,*hand dish,automatic dish, rinse agent* products)
- *Antimicrobal pesticide products (e.g.,* disinfectant and sanitizer products)
- *Dusting aid products*
- *Electronic cleaning products*
- Fruit and vegetable wash products
- *Furniture polish products*
- *Graffiti remover products*
- Grout cleaning products
- *Leather cleaning product*
- *Metal cleaning products*
- Mold and mildew stain remover products
- *Motor vehicle cleaning products*
- *Motor vehicle dressing products*
- *Motor vehicle windshield washing fluid products*
- *Motor vehicle wax, polish, sealant or glaze products*
- *Odor remover products*
- *Optical lens cleaning products*
- *Oven cleaning products*
- *Pressurized gas dusting products*
- *Printing press cleaning products*
- Products containing *microorganisms* (e.g., general-purpose, restroom, glass, carpet, or other cleaning)
- Products containing *enzymes* (e.g., general-purpose, restroom, glass,

Products Excluded from GS-53

- *Air freshener*s (designed to mask odor)
- Cleaners/degreasers marketed as suitable for cleaning soils in production and maintenance applications without *enzyme*s or *microorganisms* (included in GS-34)
- Drain additive/cleaning products
- Dry erase board cleaning products (included in GS-37)
- Floor finish and finish strippers (included in GS-40)
- General-purpose, restroom, glass and carpet cleaners for industrial and institutional use without *enzymes* or *microorganisms* (included in GS-37)
- General-purpose, bathroom, glass, and carpet cleaner products marketed specifically for *household use* without *enzymes* or *microorganisms* (included in GS-8)
- Grease trap treatment products
- Hand cleaning products for industrial and institutional use (covered in GS-41) or *household use* (covered in GS-44)
- Holding tank treatment products
- Household versions of those included on the left column
- Laundry care products (included in the standard in development, GS-48)
- Paint remover/thinner products
- Pump and sewer treatment products
- Sterilizers or high level disinfectants for critical medical devices

carpet, or other cleaning)
- *Rust stain remover products*
- Stone cleaning products
- *Tire and wheel cleaning products*
- *Upholstery cleaning product*
- *Waterless motor vehicle cleaning products*

APPENDIX 2

Examples of Potentially Acceptable Processing Methods of Naturally-Derived *Components* (which must also meet all the requirements in the standard):

- Esterification, Etherification, and Transesterification (to produce esters and ethers like polyglycerols)
- Glucosidation (to produce glucosides)
- Hydrogenation (of fats and oils)
- Hydrolysis and Hydrogenolysis (to produce hydrolyzed proteins, glycerin and fatty acids, and fatty alcohols)
- Other Condensation Reactions like Acylation of proteins and Sulfation of fatty alcohols
- Saponafication (to produce soap)