



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles with skin contact

Application Area

Application for all types of fibers (except peptide-based fibers), especially recommended for synthetic fibers. Including textiles with constant direct skin contact

Examples:

Apparel: Undergarments, outerwear, work, sport and outdoor clothing

Home textiles: Upholstery, curtains, bathroom textile sets, towels, kitchen towels table cloths, wipes

Bedding: Mattresses, covers for pillows and duvets, bed sheets, fitted sheets, bed and pillow cases, molleton

Mode of Action and Benefits

Substrates finished with Sanitized® T 11-15 have a proven excellent skin tolerance and are safe for man and environment.

Sanitized® T 11-15 has a safe bacteriostatic effect against a large number of gram positive and gram negative bacteria, including MRSA (Methicillin Resistant Staphylococcus Aureus) as well as some yeasts and micro-fungi types.

The high-tech functionality of Sanitized® T 11-15 effectively reduces the development of odor caused by bacteria. Sanitized® T 11-15 acts on the bacterial cell membrane, which inhibits function of the microorganism.

Sanitized® T 11-15 blocks the respiration and vital food intake of bacteria.

Benefits:

- › Excellent storage stability
- › Ready-to-use product
- › Easy dosage
- › No binder required
- › Can be combined with other textile effects such as binders, softeners, wetting agents, fluorocarbons, etc.
- › Can easily be applied in both padding and exhaust processes
- › Excellent exhaustion rate
- › High temperature stability
- › Non-fading finish
- › Outstanding wash resistance
- › Free from AOX
- › Accepted for OEKO-TEX Standard 100
- › EPA registered
- › bluesign® approved



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Characteristics

Composition	Polymer based silver ions release system
Shipping container	25 kg jerry-can
pH (20°C)	9.5-10.5
Ionicity	Nonionic
Density at 20°C	0.99 g/cm ³
Appearance	Slightly clear
Solubility	Water soluble
Compatibility*	In general compatible with other textile chemicals such as binders, softeners etc. Compatibility and fastness such as e.g. thermo-migration must be checked before industrial application. It is strongly recommended to adjust the pH \geq 5.5 . At lower pH slightly discoloration of application baths may occur.
Fastness*	Excellent wash resistance, light fastness, dry-cleaning resistance, ironing and perspiration fastness. The influence on other properties has to be tested.
Temperature stability	In the bath: \leq 100°C. Drying/fixing at least up 200°C to Sanitized® T 11-15 does not require condensation for fixation.
Skin tolerance	Skin and eye irritant of concentrated product (wear gloves and eye protection).
Restrictions of combination	When optical brighteners are applied on a textile with Sanitized® T 11-15 the results should be controlled irrespective of the sequence. The OBA should be a stilbene derivative.
Restrictions of application	Perspiration-light fastness has to be checked when applying Sanitized® T 11-15 on OBA treated PA or bright colored PA.

*Information concerning fastness and compatibility of the finish, relate to the applications known to us for the use of our product and correspond to the current state of our knowledge. The fulfillment of specific requirements for the finished material must be tested by the user in each case before application.



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles with skin contact

Application Pretreatment

The durability of a Sanitized® treatment demands that textiles are free of all impurities and foreign substances (e.g. brighteners, surfactants, unfixed dyes, coning oils, etc.) before the textile is treated with a Sanitized® product. To achieve the best performance it is mandatory to follow the below procedure.

The test of the fabric should show the following data before application of the Sanitized® product :

Rapid test: Target < 3 Sec. knitted material
 Drop test: Target < 10 Sec. woven fabric or similar
 pH of the textile material: Target ≤ pH 7

These data indicate that the fabric surface is nearly free of any textile chemicals. A determination could be done by extraction methods and analysis of the extracted chemicals.

Discontinuous pre-wash for textiles > 5 % elastane

Treatment on jet machine (liquor ratio 1:10)

1. 1-2 g/l Humectol C liq
 1 g/l Ladiquest 2005 liq c
 30 minutes at 85 °C, then drain
2. Rinse warm (80 °C) for 10 minutes, then drain
3. 2 g/l Sirrix NE liq
 2 g/l acetic acid 60 %
 15 minutes at 40 °C, then drain
4. Rinse cold for 10 minutes

Discontinuous pre-wash for textiles < 5 % elastane

Treatment on jet machine (liquor ratio 1:10)

1. 2 g/l Imerol JSF liq
 1 g/l Ladiquest 2005 liq c
 1.0 g/l soda ash
 30 minutes at 85 °C, then drain
2. Rinse warm (80 °C) for 10 minutes, then drain
3. 2 g/l Sirrix NE liq
 2 g/l acetic acid 60%
 15 minutes at 40 °C, then drain
4. Rinse cold for 10 minutes

Continuous pre-wash

Treatment on a continuous washing machine with six washing chambers.

1. Chamber	2. Chamber	3. Chamber	4. Chamber	5. Chamber	6. Chamber
water: 85 °C	water: 85 °C	water: 85 °C	water: 85 °C	water: 40 °C	cold water
2 g/l Hostapal MRZ liq 1 g/l Ladiquest 2005 liq c 1 g/l caustic soda	2 g/l Hostapal MRZ liq 1 g/l Ladiquest 2005 liq c 1 g/l caustic soda			3 g/l Sirrix NE liq 3 g/l acetic acid 60%	



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles with skin contact

Dosage recommendations

Dosage %	Recommendations
0.5-0.8	5-10 Home launderings
0.8-1.0	< 20 Home launderings
1.0-2.0	>20 Home launderings

Padding process

Required dosage The application quantity of Sanitized® T 11-15 is determined according to the type of substrate, the application process and the washing fastness requirements.

2.0-3.0 % Polyester
1.0-2.0 % Polyamide
1.0-2.0 % Cotton

Bath preparation **Sanitized® T 11-15 is added as last component to the prepared bath while stirring undiluted and unfiltered.**

Feed the whole water quantity into the bath. Add the additional chemicals, e.g. wetting agents, dispersions, sewability improving agents, handle improving agents, flame retardants, etc. Finally, add the undiluted Sanitized® T 11-15 under stirring. In order to verify the compatibility with other finishing products pre-trials are recommended, especially with cationic textile chemicals. It is strongly recommended to add a surfactant or wetting agent to the bath before adding Sanitized® T 11-15, e.g. Hostapal MRN.

Padding process The product can be applied in all usual pick-up proportions. Sanitized® T 11-15 should be applied at pH ≥ 5.5 .



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Padding Required dosage in g/l in relation to textile weight:

Application concentration [%]	liquor pick up [%]									
	40	50	60	70	80	90	100	110	120	
	Mass of Sanitized® T 11-15 in the bath in gram/litre (g/l)									
0.2	5.0	4.0	3.3	2.9	2.5	2.2	2.0	1.8	1.7	
0.3	7.5	6.0	5.0	4.3	3.8	3.3	3.0	2.7	2.5	
0.4	10.0	8.0	6.7	5.7	5.0	4.4	4.0	3.6	3.3	
0.5	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2	
0.6	15.0	12.0	10.0	8.6	7.5	6.7	6.0	5.5	5.0	
0.7	17.5	14.0	11.7	10.0	8.8	7.8	7.0	6.4	5.8	
0.8	20.0	16.0	13.3	11.4	10.0	8.9	8.0	7.3	6.7	
0.9	22.5	18.0	15.0	12.9	11.3	10.0	9.0	8.2	7.5	
1.0	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	
1.1	27.5	22.0	18.3	15.7	13.8	12.2	11.0	10.0	9.2	
1.2	30.0	24.0	20.0	17.1	15.0	13.3	12.0	10.9	10.0	
1.3	32.5	26.0	21.7	18.6	16.3	14.4	13.0	11.8	10.8	
1.4	35.0	28.0	23.3	20.0	17.5	15.6	14.0	12.7	11.7	
1.5	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5	
1.6	40.0	32.0	26.7	22.9	20.0	17.8	16.0	14.5	13.3	
1.7	42.5	34.0	28.3	24.3	21.3	18.9	17.0	15.5	14.2	
1.8	45.0	36.0	30.0	25.7	22.5	20.0	18.0	16.4	15.0	
1.9	47.5	38.0	31.7	27.1	23.8	21.1	19.0	17.3	15.8	
2.0	50.0	40.0	33.3	28.6	25.0	22.2	20.0	18.2	16.7	
2.1	52.5	42.0	35.0	30.0	26.3	23.3	21.0	19.1	17.5	
2.2	55.0	44.0	36.7	31.4	27.5	24.4	22.0	20.0	18.3	
2.3	57.5	46.0	38.3	32.9	28.8	25.6	23.0	20.9	19.2	
2.4	60.0	48.0	40.0	34.3	30.0	26.7	24.0	21.8	20.0	
2.5	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8	
2.6	65.0	52.0	43.3	37.1	32.5	28.9	26.0	23.6	21.7	
2.7	67.5	54.0	45.0	38.6	33.8	30.0	27.0	24.5	22.5	
2.8	70.0	56.0	46.7	40.0	35.0	31.1	28.0	25.5	23.3	
2.9	72.5	58.0	48.3	41.4	36.3	32.2	29.0	26.4	24.2	
3.0	75.0	60.0	50.0	42.9	37.5	33.3	30.0	27.3	25.0	

Drying/Condensation Temperatures up to 180°C are suitable. Sanitized® T 11-15 fixes sufficiently without thermal condensation simply by drying.

Special remark Treatments causing a structural change of the textile surface, e.g. reductive cleaning or emerizing have to be conducted prior to the application of Sanitized® T 11-15.



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Exhaust process

Application concentration The application concentration of Sanitized® T 11-15 depends on the type of substrate, the application process and the washing fastness requirements. Not suitable for HT processing.

2.0-3.0 % Polyester and blends thereof

1.0-2.0 % Polyamide

1.0-2.0 % Cotton

Dosage recommendations

Dosage %	Recommendations
0.5-0.8	5-10 Home launderings
0.8-1.0	< 20 Home launderings
1.0-2.0	>20 Home launderings

Bath / Preparation Sanitized® T 11-15 must be applied as first component in the exhaustion process. Softeners and other textile chemicals (e.g. wetting agents, sewing improvers, handling improvers, fluorocarbons, flame-proof agents, etc.) can usually be added in the same bath after a residence time of at least 15-20 minutes at the exhaustion temperature and can thereupon be applied. Sanitized® T 11-15 should be applied at pH \geq 5.5

Exhaustion process Required concentration in grams Sanitized® T 11-15 per 100 liter bath (g/100l) in relation to textile weight.

*The application amount is indicated in g/100 l bath. At volumetric addition, mass in g/volume can be replaced by ml/volume, without correction.



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Liquor ratio = 1:x								
	5	6	7	8	9	10	11	12
Mass of Sanitized® T 11-15 100 l bath (g/hl)*								
0.2	40.0	33.3	28.6	25.0	22.2	20.0	18.2	16.7
0.3	60.0	50.0	42.9	37.5	33.3	30.0	27.3	25.0
0.4	80.0	66.7	57.1	50.0	44.4	40.0	36.4	33.3
0.5	100.0	83.3	71.4	62.5	55.6	50.0	45.5	41.7
0.6	120.0	100.0	85.7	75.0	66.7	60.0	54.5	50.0
0.7	140.0	116.7	100.0	87.5	77.8	70.0	63.6	58.3
0.8	160.0	133.3	114.3	100.0	88.9	80.0	72.7	66.7
0.9	180.0	150.0	128.6	112.5	100.0	90.0	81.8	75.0
1.0	200.0	166.7	142.9	125.0	111.1	100.0	90.9	83.3
1.1	220.0	183.3	157.1	137.5	122.2	110.0	100.0	91.7
1.2	240.0	200.0	171.4	150.0	133.3	120.0	109.1	100.0
1.3	260.0	216.7	185.7	162.5	144.4	130.0	118.2	108.3
1.4	280.0	233.3	200.0	175.0	155.6	140.0	127.3	116.7
1.5	300.0	250.0	214.3	187.5	166.7	150.0	136.4	125.0
1.6	320.0	266.7	228.6	200.0	177.8	160.0	145.5	133.3
1.7	340.0	283.3	242.9	212.5	188.9	170.0	154.5	141.7
1.8	360.0	300.0	257.1	225.0	200.0	180.0	163.6	150.0
1.9	380.0	316.7	271.4	237.5	211.1	190.0	172.7	158.3
2	400.0	333.3	285.7	250.0	222.2	200.0	181.8	166.7
2.1	420.0	350.0	300.0	262.5	233.3	210.0	190.9	175.0
2.2	440.0	366.7	314.3	275.0	244.4	220.0	200.0	183.3
2.3	460.0	383.3	328.6	287.5	255.6	230.0	209.1	191.7
2.4	480.0	400.0	342.9	300.0	266.7	240.0	218.2	200.0
2.5	500.0	416.7	357.1	312.5	277.8	250.0	227.3	208.3
2.6	520.0	433.3	371.4	325.0	288.9	260.0	236.4	216.7
2.7	540.0	450.0	385.7	337.5	300.0	270.0	245.5	225.0
2.8	560.0	466.7	400.0	350.0	311.1	280.0	254.5	233.3
2.9	580.0	483.3	414.3	362.5	322.2	290.0	263.6	241.7
3.0	600.0	500.0	428.6	375.0	333.3	300.0	272.7	250.0

Application concentration [%]



Technical Information

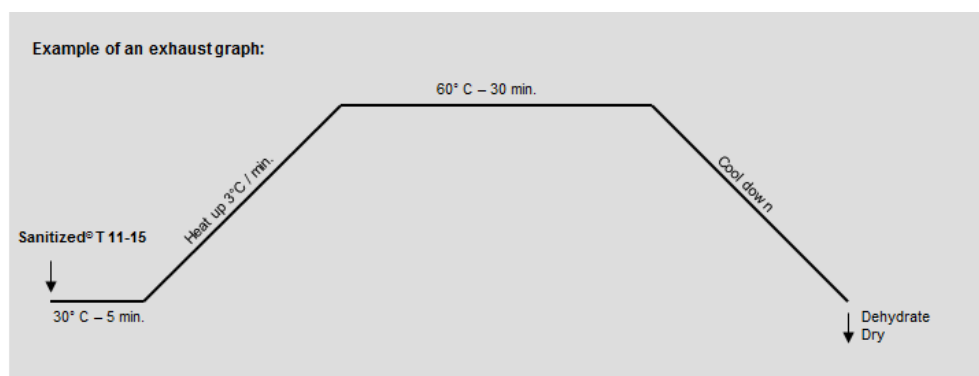
Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Process prescription The best results are achieved using a short liquor ratio ($\leq 1:10$) and a slightly acidic pH 5.5-6.0. Sanitized® T 11-15 can be exhausted with the technically usual procedures and temperatures, preferably between 40 °C and 80 °C. Residence time should be at least 30 min.

Exhaust process:

- › Prepare the water
- › Add wetting agent
- › Adjust pH value ≥ 5.5 with acetic acid or citric acid
- › Add corresponding amount of Sanitized® T 11-15
- › Perform a short run: 5 min. at 30 °C
- › Heat up at a rate of 1-3 °C/min.
- › Keep during at least 30 min. at processing temperature
- › After 15-20 min. the other compatible textile chemicals can be added
- › Keep at constant processing temperature for further 15-20 min.
- › In case further textile chemicals should be added, exhaust according to the requirements for those chemicals, but allow residence for further 15 min. at a pH value of ≤ 7
- › Cool down at a rate of 1-3 °C/min.
- › Remove bath liquor
- › Avoid rinsing if possible
- › Drain and dry



Dry condensation Temperatures up to 180 °C are suitable. Sanitized® T 11-15 fixes sufficiently without thermal condensation, simply through the drying of the textile.

Special remark Processes causing a structural change of the textile surface, such as reductive cleaning or emerizing, must be carried out before application of Sanitized® T 11-15 on the textile. Pretreated textiles, however, must be ready for finishing, i.e. washable chemicals must be eliminated without leaving any residue before starting application.



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Environmental Management

- Storage** Sanitized® T 11-15 should not be led into open waters or sewage systems.
- Air** The statutory regulations with regard to air pollution should be followed.
- Water** Residues of bath preparations of applications such as padding, coating, foaming and spraying must not be discharged to public sewage plants. Measures must be taken for an appropriate disposal of treatment of these liquids. The following methods can be used:
1. Disposal according to legal instructions for hazardous waste
 2. Chemical precipitation of the silver using salts – neutralizing or slightly alkalizing of the preparation/the bath (pH 7-9)
 - › Add per kg Sanitized® T 11-15 in the precipitation tank 4.5 g Sodium sulphide hydrate (CAS 27610-45-3, technical, with a content of ≥60%), stir, let sediment or filter
 - › Please note: in vicinity of acid the sodium sulphide releases highly toxic hydrogen sulphide, recognizable from the smell of addled eggs. Safety data and regulations for handling of hydrogen sulphide have strictly to be observed.
 - › Conduct the filter effluent to the sewage plant
 - › Dispose of filter residue appropriately
 3. The silver contents remaining in the filter residue can be refined and recycled.

The exhaustion bath can be disposed according to the local statutory regulations concerning waste water disposal.

Sanitized® T 11-15 technologies are developed for outstanding washfastness and stability to assure that only smallest amounts of silver are released during standard washing procedures.

The ecological risks from silver in waste water are considered as low. Soluble silver ions rapidly bond with sulfurous compounds which are found practically everywhere and convert them to the insoluble inactive substance silver sulphide. Because of its practically evanescent solubility silver sulphide is regarded as biologically inactive according to current scientific knowledge. Sulfur containing compounds are particularly abundant in waste water and sewage treatment plants. This assures a quick conversion into harmless silver sulphide.



Technical Information

Sanitized® T 11-15

Hygiene and odor control for textiles
with skin contact

Microbiological Testing

The following test method is recommended to check the built-in hygiene function of the finished textiles:

Hygiene and odor control	germ count methods	bacteria
	DIN EN 14119	yeasts, micro-fungi

Documentation concerning this test method can be requested from the responsible Archroma agent.

Sanitized® Quality Seal

With a simple license agreement we transfer the rights to use the Sanitized® quality seal to you. Only substrates corresponding with the SANITIZED standard are allowed to bear the Sanitized® quality seal.

Please request the detailed SANITIZED "Licensing agreement" documentation.

Storage Handling

Storage stability	12 months from the delivery date in unopened original container.
Temperature stability	Up to 50°C. Protect Sanitized® T 11-15 against frost.

Additional safety and environmental information is to be found in the separate safety data sheet.

SANITIZED is a trademark, which is registered in numerous countries. All statements in communications regarding the technical application of our products refer to the possibilities for their use, as known to us, and reflect the current state of our knowledge. Due to the numerous possible application variations in the industrial practice and the necessarily limited number of application examples that have been prepared, this information is given without

obligation or liability of any kind on our part. Safety data and instructions can be obtained either from the technical information about our products or are available on request. Before every application of this product it must first be ensured whether its intended use conforms to legal requirements, whether an official notification or registration is required, that there are not undesired effects in the application of the products or use of the treated material and whether any special precautions have to be

taken for the protection of the plant personnel or the environment. Claims must be in compliance with the statutes and regulations of the country in which an item treated with a Sanitized® product is placed into circulation; the possible non-binding wording for such claims is found on our homepage. The party using a claim must ensure the permissibility of the claim in each specific individual case. SANITIZED AG is not liable for claims, which are made with reference to treated items.