

**NEW WORK ITEM PROPOSAL (NP)****DATE OF CIRCULATION:**

2022-11-19

CLOSING DATE FOR VOTING:

2023-02-11

PROPOSER: ISO member body:
ANSI / ASN**REFERENCE NUMBER:**

Click or tap here to enter text.

 Committee, liaison or other:
Click or tap here to enter text. **WITHIN EXISTING COMMITTEE**

Document Number: Click or tap here to enter text.

Committee Secretariat: Click or tap here to enter text.

 PROPOSAL FOR A NEW PC*

(*Request to reconstitute PC 305)

A proposal for a new work item within the scope of an existing committee shall be submitted to the secretariat of that committee.

A proposal for a new project committee shall be submitted to the Central Secretariat, which will process the proposal in accordance with ISO/IEC Directives, Part 1, [Clause 2.3](#).

Guidelines for proposing and justifying new work items or new fields of technical activity (Project Committee) are given in ISO/IEC Directives, Part 1, [Annex C](#).

IMPORTANT NOTE: Proposals without adequate justification and supporting information risk rejection or referral to the originator.

PROPOSAL

(to be completed by the proposer, following discussion with committee leadership if appropriate)

English title

Non-sewered sanitation systems — Prefabricated integrated treatment units — General safety and performance requirements for design and testing

French title

Systèmes d'assainissement autonomes — Unités de traitement intégrées préfabriquées — Exigences générales de performance et de sécurité pour la conception et les essais

(Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.2).

In case of amendment, revision or a new part of an existing document, please include the reference number and current title

SCOPE(Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.3)

This document specifies general safety and performance requirements for design and testing as well as sustainability considerations for non-sewered sanitation systems (NSSS). A NSSS, for the

purposes of this document, is a prefabricated integrated treatment unit, comprising frontend (toilet facility) and backend (treatment facility) components that

a) collects, conveys, and fully treats the specific input within the system, to allow for safe reuse or disposal of the generated solid, liquid, and gaseous output, and

b) is not connected to a networked sewer or networked drainage systems.

This document is applicable to sanitation systems that are either manufactured as one package, or manufactured as a set of prefabricated elements designed to be assembled in one location without further fabrication or modification that influences the system function. The plane or surface (e.g. flooring, concrete pad) upon which a fully assembled NSSS is situated is beyond the scope of this document. This document is not applicable to sanitation systems constructed in situ.

This document also covers NSSS backend components that are designed to be integrated with one or more specified frontends.

Although this document is primarily applicable to the development of sanitation systems that are not connected to water and electricity networks, it can also be applied to systems that can utilize water mains and/or electricity.

This document defines the basic treatable input as primarily human excreta and gives options for extending the range of input substances. Requirements for the quality of the outputs from the sanitation system are given for solid and liquid discharges as well as odour, air, and noise emissions.

It contains criteria for the safety, functionality, usability, reliability, and maintainability of the system, as well as its compatibility with environmental protection goals.

This document does not encompass the following aspects:

- guidelines for selection, installation, operation and maintenance, and management of sanitation systems;
- transportation of treated output outside of the sanitation system (e.g. manual transport, transportation by truck or trunk pipes) for further processing, reuse, or disposal;
- treatment processes taking place at another location separate from that of the frontend and backend components;
- reuse and disposal of sanitation system output.

PURPOSE AND JUSTIFICATION

(Please see ISO/IEC Directives, Part 1, [Annex C](#) and additional guidance on justification statements in the brochure [Guidance on New Work](#))

Revision is needed to ISO 30500:2018, which was developed by the now disbanded ISO/PC 305 Non-sewered sanitation systems. The former leadership to ISO/PC 305 is proposing that the PC be reinstated to undertake the revision. The revision is proposed based on areas identified during testing of systems following publication. An initial list of areas identified for consideration include: definitions needed to determine usage solid and liquid microbial testing methods, discussion on the possibility of alternatives to raw faeces and urine as input material, difficulties faced and updates to testing requirements based on experience from executing the standard and modification to the emissions thresholds. Please see **Annex A** for more specific details.

PROPOSED PROJECT LEADER (name and email address)

Chris Chan Xianyuan, Chris.CHAN@tuvsud.com

PROPOSER (including contact information of the proposer's representative)

ANSI Sara Desautels (sdesautels@ansi.org) / ASN El Hadji Abdourahmane Ndione (abdourahmanendione@hotmail.com).

- The proposer confirms that this proposal has been drafted in compliance with ISO/IEC Directives, Part 1, Annex C**

PROJECT MANAGEMENT

Preferred document

- International Standard
 Technical Specification
 Publicly Available Specification*

* While a formal NP ballot is not required (no eForm04), the NP form may provide useful information for the committee P-members to consider when deciding to initiate a Publicly Available Specification.

Proposed Standard Development Track (SDT – to be discussed by the proposer with the committee manager or ISO/CS)

- 18 months 24 months 36 months

Proposed date for first meeting: 2023-06-19

Proposed TARGET dates for key milestones

- Circulation of 1st Working Draft (if any) to experts: 2023-09
- Committee Draft consultation (if any): 2024-01
- DIS submission*: 2024-06
- Publication*: 2025-06

* Target Dates for DIS submission and Publication should be set a few weeks ahead of the limit dates automatically determined when selecting the SDT.

It is proposed that this DOCUMENT will be developed by:

- An existing Working Group, add title [Click or tap here to enter text.](#)
A new Working Group [Click or tap here to enter text.](#)
- (Note that the establishment of a new Working Group requires approval by the parent committee by a resolution)*
- The TC/SC directly
 To be determined
 This proposal relates to a new ISO document
- This proposal relates to the adoption, as an active project, of an item currently registered as a Preliminary Work Item
 This proposal relates to the re-establishment of a cancelled project as an active project
 Other: Reconstitution of ISO/PC 305 Non-sewered sanitation systems

Additional guidance on project management is available [here](#).

PREPARATORY WORK

- A draft is attached

- An existing document serving as the initial basis is attached
 - An outline is attached
- Note: at minimum an outline of the proposed document is required

The proposer is prepared to undertake the preparatory work required:

- Yes No

If a draft is attached to this proposal:

Please select from one of the following options:

- The draft document can be registered at Preparatory stage (WD – stage 20.00)
- The draft document can be registered at Committee stage (CD – stage 30.00)
- The draft document can be registered at enquiry stage (DIS – stage 40.00)
- If the attached document is copyrighted or includes copyrighted content, the proposer confirms that copyright permission has been granted for ISO to use this content in compliance with [clause 2.13](#) of ISO/IEC Directives, Part 1 (see also the [Declaration on copyright](#)).

RELATION OF THE PROPOSAL TO EXISTING INTERNATIONAL STANDARDS AND ON-GOING STANDARDIZATION WORK

To the best of your knowledge, has this or a similar proposal been submitted to another standards development organization or to another ISO committee?

- Yes No

If Yes, please specify which one(s) [Click or tap here to enter text.](#)

- The proposer has checked whether the proposed scope of this new project overlaps with the scope of any existing ISO project
- If an overlap or the potential for overlap is identified, the proposer and the leaders of the existing project have discussed on:
 - i. modification/restriction of the scope of the proposal to avoid overlapping,
 - ii. potential modification/restriction of the scope of the existing project to avoid overlapping.
- If agreement with parties responsible for existing project(s) has not been reached, please explain why the proposal should be approved
[Click or tap here to enter text.](#)
- Has a proposal on this subject already been submitted within an existing committee and rejected? If so, what were the reasons for rejection?
[Click or tap here to enter text.](#)

This project may require possible joint/parallel work with

- IEC (please specify the committee) [Click or tap here to enter text.](#)
- CEN (please specify the committee) [Click or tap here to enter text.](#)
- Other (please specify) [Click or tap here to enter text.](#)

Please select any UN Sustainable Development Goals (SDGs) that this proposed project would support (information about SDGs, is available at www.iso.org/SDGs)

- GOAL 1: No Poverty

- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace, Justice and strong institutions
- N/A GOAL 17: Partnerships for the goals

Identification and description of relevant affected stakeholder categories

(Please see [ISO CONNECT](#))

	Benefits/Impacts/Examples
Industry and commerce – large industry	Clear set of internationally recognized performance and safety requirements for integrated non-sewered sanitation toilet and treatment systems for product development, sales, and servicing. The impact is worldwide for developed and especially developing countries where the majority of the population does not have access to safely managed sanitation. Samsung, Kohler, Lixil, Huatie,
Industry and commerce – SMEs	Similar to above. Examples include EnviroSan, The update will make it more achievable for manufacturers to conduct internal testing before entering the market.
Government	There are a number of governments working on solutions that will make available affordable safe sanitation systems for their citizens. Senegal, South Africa, India, China, Nepal, etc....
Consumers	Having an internationally recognized standard that products comply to will give confidence to the consumer for aspects that the average person can not readily measure, such as that the product kills human enteric pathogens, is safe to use, and protects the environment.
Labour	Click or tap here to enter text.
Academic and research bodies	Clear set of internationally recognized requirements is needed in research and development of technologies. Caltech, Georgia Tech, Cranfield University, etc....

Standards application businesses	As the non-sewered sanitation industry develops and matures, there will be a business for testing, inspection and certification. Enable a clearer and more achievable test methods, allowing certification to be more attainable.
Non-governmental organizations	There are many NGOs working to address the lack of safely managed sanitation identified in the UN SDG 6.2. WHO, BMGF, UN, etc....
Other (please specify)	Click or tap here to enter text.

Listing of countries where the subject of the proposal is important for their national commercial interests (Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.8)

Senegal, South Africa, India, China, and Nepal have active projects implementing the technology and pilot projects. ISO 30500 has been nationally adopted in at least 27 countries including: USA, Canada, France, United Kingdom, Morocco, Algeria, Tunisia, Niger, Senegal, Nigeria, Benin, Togo, Ghana, Cote d'Ivoire, Cameroon, Democratic Republic of Congo, Uganda, Kenya, Ethiopia, Rwanda, Tanzania, Zambia, Zimbabwe, South Africa, Namibia, Madagascar, Bangladesh.

Listing of external international organizations or internal parties (other ISO and/or IEC committees) to be engaged in this work (Please see ISO/IEC Directives, part 1, [Annex C](#), Clause C.4.9)

Toilet Board Coalition, AfWA

ISO/TC 224, TC 275, TC 282

Listing of relevant documents (such as standards and regulations) at international, regional and national level (Please see ISO/IEC Directives, Part 1, [Annex C](#), Clause C.4.6)

ISO 24521:2016 Activities relating to drinking water and wastewater services — Guidelines for the management of basic on-site domestic wastewater services

ISO 20816-1, Mechanical vibration — Measurement and evaluation of machine vibration — Part 1: General guidelines

ISO/IEC 17065:2012, Conformity assessment — Requirements for bodies certifying products, processes and services

IEC 60942:2017, Electroacoustics — Sound calibrators

IEC 61260-1:2014, Electroacoustics — Octave-band and fractional-octave-band filters — Part 1: Specifications

IEC 61672-1:2013, Electroacoustics — Sound level meters — Part 1: Specifications

EN 997:2012, WC pans and WC suites with integral trap

EN 13725:2003, Air quality — Determination of odour concentration by dynamic olfactometry

EPA Method 1A, Sample and Velocity Traverses for Stationary Sources with Small Stacks or Ducts

NSF/ANSI 41:2011, Non-liquid saturated treatment systems

WHO Guidelines for Drinking Water Quality, 4th edition

ADDITIONAL INFORMATION

Maintenance Agencies (MAs) and Registration Authorities (RAs)

- This proposal requires the designation of a maintenance agency.
If so, please identify the potential candidate:
Click or tap here to enter text.
- This proposal requires the designation of a registration authority.
If so, please identify the potential candidate
Click or tap here to enter text.

NOTE: Selection and appointment of the MA or RA are subject to the procedure outlined in ISO/IEC Directives, Part 1, [Annex G](#) and [Annex H](#).

Known patented Items (Please see ISO/IEC Directives, Part 1, [Clause 2.14](#))

Yes No

If Yes, provide full information as an annex – See attached **Annex B**

Is this proposal for an ISO management System Standard (MSS)?

Yes No

Note: If yes, this proposal must have an accompanying justification study. Please see the Consolidated Supplement to the ISO/IEC Directives, Part 1, [Annex SL](#) or [Annex JG](#)

Template for comments and secretariat observations

Date:2022-11-11	Document: Annex Initial list of proposed changes needed to ISO 30500:2018	Project:
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MB/NC ¹	Line number	Clause/Subclause	Paragraph/Figure/Table	Type of comment ²	Comments	Proposed change	Observations of the secretariat
		3.1.2.7		te	What % of liquid defines effluent and solid?	Add definition for effluent and solid.	
		4.3		ge	Capacity has more reference to the number of users and volume of input. These subclauses include information on operability.	Change the title to "Design capacity and operability" or "Design for operability"	
		4.9.4		ge	Provide other unit of measurements for grit finish requirements	Overall cleanability should have a minimum value equivalent to that of a No. 3 100 to 120 grit finish on stainless steel, equivalent to Ra 40 µm or less	
		4.11		ge	"State-of-the-art" is too high a standard and not realistic .	Change to "to proven engineering state-of-the-art approaches"	
		5.4.4		ge	There are many other simpler methods for backflow prevention, such as installation of non-return valves. The ASME A112.1.2 is backflow prevention using air gaps. It is not ideal to define usage on a specific backflow prevention method.	Delete "The test method should be in accordance with ASME A112.1.2 or an equivalent national or international standard."	
		5.6.1		ge	To ensure fire safety in all electrical components	Add a 4th requirement: "d) adequate insulation and protection against fire and heat."	
		7.2.3		te	It is difficult to collect separate Urine and Faeces, especially for large systems, although it is possible and not a showstopper. Alternatives could be explored to reduce the complexity and cost.	Explore the possibility of using faecal sludge from wastewater plants.	

¹ **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by **)

² **Type of comment:** **ge** = general **te** = technical **ed** = editorial

		7.2.9.3	Table 4	te	CFU and MPN are not equivalent and cannot be converted to one another. Either one should be deleted or two threshold values should be provided	Recommend using CFU for liquid and MPN for solid threshold for enteric bacterial. Need to add bacteria threshold value for MPN.	
		7.2.9.3	Table 4	te	During the validation testing, it is brought to our notice that the limit of detection (LOD) for Clostridium perfringens in sold samples by testing laboratories and recommended method in ISO30500 is <10cfu/g.	Change the threshold for protozoa to <10cfu/g	
		7.2.9.4	Table 6	te	Effluent categories (Category A and Category B) should be streamlined. It's too difficult for manufacturer to make determination where the technology will be installed.	To streamline to the stricter set of thresholds.	
		7.2.9.7		ge	Change the units of the air emissions thresholds for easier comparison and consistency.	Change to use the units of mg/m3 or µg/m3 (weight / total volume)	
		7.2.9.7	Table 12	te	Quality of vent, propose adjustments be made to maximum vent operations/thresholds with different durations across the day.	Example, to make distinction between continuous 24hrs operations (1hr average) and intermittent <1hr operations (e.g. 10min average).	
		7.2.9.7		ge	Align the exhaust, vent, stack emission terms in the standard.	Change all "exhaust", "vent" to "stack" emission.	
		A.2.2	Table A.1	ge	There shouldn't be any testing for the clause on 6.2.1 General Usability Requirements	Delete "functional testing according to 7.2" for 6.2.1	
		A.2.2	Table A.1	ed	Typographical error	4.3.7 Operability following long-term shut down	
		A.2.2	Table A.1	ge	There shouldn't be testing for 5.7 Reliability of conveyance devices. How should this be inspected?	Testing throughout the test sequence (Table 3)	

Template for comments and secretariat observations

Date:2022-11-11	Document: Annex Initial list of proposed changes needed to ISO 30500:2018	Project:
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MB/ NC ¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Observations of the secretariat
		A.3.4.3	Table A.3	te	For Somatic coliphage, the test method should be ISO 10705-2.	ISO 10705- 1 2	
		A.3.4.3	Table A.3	te	The recommended Helminth test method is not as detailed as it could be. It is not a commonly used standard so if the goal is for accredited labs to conduct Helminth testing for certification, then it should be changed.	Change the SOP Helminth Test to a recognized test method.	
		A.3.4.4		te	It is difficult for laboratories to prepare large volumes of spike material for large community scale RTs.	Make it a requirement for manufacturers to provide a scaled down disinfection system for testing. To be discussed further on other possibilities.	
		A.3.4.4		te	There is great difficulty in sourcing of Ascaris sum viable ova. Currently there is only 1 supplier for this in the world and is based in the US	To develop a proposal via research on alternatives.	
		A.3.6.2.2		ge	Change the recommended method for PAH measurement from US EPA Compendium method TO-13A	Change to EPA Method 429	
		A.3.6.2.2.3	Table A.3	te	Standard VDI 3874 is not the correct test method for this application.	Remove VDI 3874	
		A.3.6.3.1		ed	The wording on distance and measurements is confusing for the reader.	The measurement shall be carried out inside the superstructure, about 1 m to 1,5 m from the centre of the squatting or seat pan of the frontend.	
		A.3.6.5.1		ge	Change the units from ppmv or ppbv (volume / total volume)	Change to use the units of mg/m ³ or µg/m ³ (weight / total volume)	

¹ MB = Member body / NC = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by **)

² Type of comment: ge = general te = technical ed = editorial

					in Formula A.1 and A.2. ppmb or ppbv are proportional units based on volume per volume which are independent of temperature and pressure. Normalisation to 7% O2 and H2O dry basis is still required for ppmv & ppbv.		
		A.3.7.2		te	Instruments are too high end. It is not necessary for having a class 1 which is +/- 1 dB. A class 2 which has a +/- 2 or 3 dB is usually sufficient. It is not practical to have developing countries laboratories to have such equipments.	Change class 1 requirements to "requirements of IEC 61672-1:2013, class 1 minimum class 2"	
		A.3.7.4.1.1		ge	The wording on measurement point is confusing for the reader	The measurement point shall be centred above the squatting or seat pan of the frontend, at a height of 1.2m above ground level	
		A.3.7.4.2		te	Faster data acquisition	"shall be set to A-weighting and slow fast time weighting"	
		A.3.7.5.1		ge	The equations for the mentioned K1 and K2 are missing. To add the equation of include the reference for the equation.	Two possible corrections, refer to ISO 3744 Clause 8.2.3 , can be determined to improve the measurement uncertainty of noise levels:	

** are comments from ISO Central Secretariat

ANNEX B

Known Patented Items

<u>Inventor(s)</u>	<u>Institution - Assignee (if applicable)</u>	<u>Patent (Application) Number</u>	<u>Patent (Application) Title</u>	<u>Countries</u>
	Asian Institute of Technology	1501000026	Wormhole separator	
	Asian Institute of Technology	1401004209	Hydro-cyclone for solid-liquid separation	
	University of the West of England (UWE), Bristol	Chinese Patent Application No. 2012800227584, European Patent Application No. 12710778.7, Indian Patent Application No. 7998/DELNP/2013, United States Patent Application No. 14/003,882	Microbial Fuel Cell (MFC)	China European Indian Unites States
	University of the West of England (UWE), Bristol	United Kingdom Patent Application No. 1501570.4	3rd and 4th pins for modulation, control and sensing	United Kingdom
	Janicki	62/088,285 - Filing Date: December 5, 2014	Toilet Systems and Methods	
Daniel Yeh, Robert Bair, Onur Ozcan, George Dick, Jorge Calabria, Matthew Woodham	University of South Florida	U.S. Provisional Patent Application No. 61/955,450, filed March 19, 2014	A Compact System for Decentralized Sanitation and Waste Resource Recovery	US
Daniel Yeh, Robert Bair, Onur Ozcan, George Dick, Jorge Calabria, Matthew Woodham	University of South Florida	Patent Cooperation Treaty (PCT) Patent Application No. PCT/US15/21473, filed March 19, 2015	Portable Wastewater Treatment Systems	PCT
Daniel Yeh, Onur Ozcan, Robert Bair	University of South Florida	US Provisional Patent Application No. 61/947,664, filed March 4, 2014	Concentrically-Baffled Reactor (CBR) for Water or Wastewater Treatment	US
Daniel Yeh, Onur Ozcan, Robert Bair	University of South Florida	PCT Patent Application No. PCT/US15/18495, filed March 3, 2015	Concentrically-Baffled Reactors and Systems that Incorporate Them	PCT

Daniel Yeh, George Dick, Robert Bair, Onur Ozcan, Jorge Calabria	University of South Florida	US Provisional Patent Application No. 62/128,696, filed March 5, 2015	Systems and Methods for Wastewater Treatment and Resource Recovery Incorporating Combinations of Separation, Conversion and Polishing Stages	US (PCT filing expected)
HOFFMANN, Michael, R.; (US). ARYANFAR, Asghar; (US). CHO, Kangwoo; (US). CID, Clement, A.; (US). KWON, Daejung; (KR). QU, Yan; (US)	California Institute of Technology	WO2014058825	Self-contained, PV-powered domestic toilet and wastewater treatment system	International https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2014058825&recNum=2&maxRec=2&office=&prevFilter=&sortOption=Pub+Date+Desc&queryString=FP%3A%28pv+powered+toilet+california%29&tab=PCT+Biblio
Hoffmann Michael R. Aryanfar Asghar Cho Kangwoo Cid Clement A. Kwon Daejung Qu Yan	California Institute of Technology	US20140209479	SELF-CONTAINED, PV-POWERED DOMESTIC TOILET AND WASTEWATER TREATMENT SYSTEM	US https://patentscope.wipo.int/search/en/detail.jsf?docId=US106045304&recNum=1&maxRec=2&office=&prevFilter=&sortOption=Pub+Date+Desc&queryString=FP%3A%28pv+powered+toilet+california%29&tab=NationalBiblio

SHIN, Hyunsuk KIM, Yongkwon KIM, Ginam	SAMSUNG ELECTRONICS CO., LTD.	PCT/KR2021 /001155 US63/030777	Toilet and manure treatment system including the same	Republic of Korea US (and other countries being considered)
KIM, Yongkwon SHIN, Hyunsuk KIM, Ginam KIM, Mijong CHANG, Wonsuk	SAMSUNG ELECTRONICS CO., LTD.	PCT/KR2021 /003050 US63/030749	APPARATUS FOR PROCESSING FECES AND MANURE TREATMENT SYSTEM INCLUDING THE SAME	Republic of Korea US (and other countries being considered)
KIM, Nagjong KIM, Ginam CHANG, Wonsuk HWANG, Seungsik	SAMSUNG ELECTRONICS CO., LTD.	PCT/KR2021 /005950 US63/030759	Household toilet waste treatment system comprising biological treatment device and combustion device and method of treating toilet waste using the same	Republic of Korea US (and other countries being considered)
CHANG, Wonsuk KIM, Ginam KIM, Yongkwon INKI KIM SHIN, Hyunsuk HWANG, Seungsik	SAMSUNG ELECTRONICS CO., LTD.	KR20210034868	A composition for hard coating, hard coating film obtained from the composition, laminate including the hard coating film, method for manufacturing the hard coating film, and article including the hard coating film	Republic of Korea (and other countries being considered)
CHANG, Wonsuk INKI KIM KIM, Ginam	SAMSUNG ELECTRONICS CO., LTD.	KR20210039997	An antibacterial monomer, antibacterial polymer composition including the antibacterial monomer, antibacterial film obtained from the antibacterial polymer composition, and article including the antibacterial film	Republic of Korea (and other countries being considered)