

## SODIS Newsletter No 2 - September 2009

SODIS - An initiative of Eawag, the Swiss Federal Institute of Aquatic Science and Technology

### Contents

New homepage online	1
SODIS team at Eawag	1
Events	1
SODIS projects update	2
Spotlight: SODIS in Latin America	3
Internet resources	4
Household Water Treatment and Safe Storage News	4
New scientific publications	5

### New SODIS homepage online

The new **homepage** of the SODIS Reference Center is online: [www.sodis.ch](http://www.sodis.ch). The page provides information on the method of solar water disinfection, and descriptions of promotion projects supported by SODIS / Eawag.

### SODIS team at Eawag



**Andrea Tamas** joined the SODIS team at Eawag in November 2008. She currently conducts a post-doc study on the long term sustainability with regard to the application of SODIS in Nepal, Indonesia and Bolivia. Andrea completed her PhD on the effect of different promotion approaches on the acceptance and uptake of SODIS in Bolivia.



**Matthias Saladin** joined the SODIS team at Eawag after acting as the deputy director of the Fundación SODIS in Latin America for six years. He currently investigates the potential for developing and marketing different products to support the practice of SODIS (e.g. special SODIS bottles and bags, flow through reactors, indicators for irradiation dose, etc.).

**Elsa Sanchez Montaña** is the new deputy director of the Fundación SODIS in Latin America. She holds university degrees in Public Health and has been working with PROCOSI as a coordinator of a SODIS project.

### Events

The third **African Regional SODIS Workshop** took place in Nairobi, Kenya, on January 18-21, 2009. Participants from twelve countries in Sub-Saharan Africa attended the workshop and exchanged their experience with the promotion of SODIS. The workshop program focused on effective strategies to communicate the result from pilot projects and health impact surveys to governments and other institutions whose programs could benefit from integrating a SODIS promotion component.



In May 2009, the **34th WEDC annual conference** took place in Addis Ababa, Ethiopia. 600 participants attended the conference. Several sessions covered issues of water supply and water treatment. Two key insights from the sessions with a direct relevance to the promotion of SODIS can be summarized as follows.

- **Self supply** is a new concept that addresses the problem of limited water supply coverage. The [self supply approach](#) aims to improve the access to safe drinking water for people that do not currently - and will not for years to come - benefit from an 'improved water source' that provides pathogen free water year-round. The self supply approach aims to increase the water users' capacity to make incremental improvements to their traditional water sources (e.g. lining of traditional wells). The Ethiopian government - while also implementing an ambitious program to achieve 'universal access' to improved drinking water sources - has recently endorsed the idea of self supply as a means to accelerate the progress towards safe water consumption through various tracks. Household water treatment and safe storage (HWTS) is one element in the self-supply approach. HWTS is not, however, limited to 'self supply' scenarios, as improving water quality at the point of consumption can also benefit people with access to 'improved sources' if leaking pipes or unhygienic conditions put their drinking water at risk of re-contamination. Synergies between initiatives to promote HWTS and 'self supply' should be actively exploited in the context of policies and programs aiming at universal safe water consumption.
- The approach of **household water treatment and safe storage (HWTS)** is **increasingly recognized among key decision makers**, though concerted action by water and health authorities is still limited in most countries. There is a broad consensus that HWTS promotion can and should not replace efforts to increase water supply coverage in terms of the provision and upgrading of water supply infrastructure, but that HWTS is a complementary approach to achieve safe water consumption. Many experts and practitioners agree that different technologies for household water treatment should be promoted side by side in order to give users a choice to select the most appropriate system in their particular situation. No 'silver bullet' technology exists - all available HWTS technologies have advantages and disadvantages that make them suitable for certain segments of the population more than for others. Experts and organizations promoting HWTS technologies increasingly join forces and collaborate with governments and donor agencies in campaigns to increase awareness about the importance of household water treatment to promote HWTS technologies in an integrated manner.

## Updates from SODIS project supported by SODIS / Eawag

SODIS is already used for drinking water treatment in 30 countries by approximately 4.5 million people. Since 2006, the promotion approach has increasingly shifted from the implementation of pilot projects by NGOs specialized in health education towards collaboration with government agencies and international organizations. Collaboration with NGOs for pilot projects proved to be effective, particularly for the start-up of activities in a country. Management structures of NGOs are typically lean and flexible, and concrete results can be obtained within a short time. For a sustainable promotion of SODIS at larger scale, however, an institutionalization within programs of governmental health, education and water supply sectors is required. The normative functions of governmental institutions are expected to strengthen the promotion at grassroots level and increase the sustainability of SODIS use. At present, governmental institutions are directly involved in the implementation of SODIS promotion projects in Pakistan, Nepal, India, Indonesia, Vietnam, Philippines, Ecuador, Bolivia, Nicaragua, Honduras, Guatemala and El Salvador.



**Asia:** Approximately 2.9 Mio people use SODIS in Asia. Promotion projects are ongoing on in **Vietnam, Philippines, Indonesia, India, Pakistan, Nepal, Laos and Papua New Guinea.**

In Pakistan, collaboration with the National Program for Family Planning and Primary Health Care in several districts of Punjab and Sindh Provinces was established. In the current phase, the project trains 1000 Lady Health Workers in SODIS / HWTS and improved hygiene, reaching more than 800'000 people.

In Nepal, a comprehensive HWTS promotion campaign involving different stakeholders (Department of Water Supply and Sewerage, Unicef, UN Habitat, Coca Cola) has started in five districts.

In the states of Tamil Nadu and West Bengal, India, contacts with health and slum clearance authorities were established, and training of these agencies' staff in SODIS / HWTS was initiated.



**Africa:** The extended promotion of SODIS in 14 African countries started in 2007. Projects were initiated in Senegal, Sierra Leone, Guinea, Ghana, Burkina Faso, Togo, Cameroon, DR Congo, Uganda, Kenya, Tanzania, Zambia, Zimbabwe and Mozambique. Until 2010, about 1.1 million USD are committed for 26 projects with the goal to train 1.5 million people. At present, about 560'000 people in Africa use SODIS for the treatment of their drinking water.

SODIS promotion in the projects in **Senegal, Cameroon, Kenya, Zambia, and Zimbabwe** focuses on urban slums, where PET bottles are widely available. In certain rural areas, e.g. in the projects in **Guinea and Ghana**, bottle supply has been identified as a limiting factor for sustainable SODIS use. The experiences in rural areas of other countries - **Togo, Uganda and Sierra Leone** - have been very encouraging. In Sierra Leone, SODIS was promoted as a solution for water treatment after general awareness campaigns had taken place (CLTS approach), resulting in an uptake of SODIS by about 70% in trained households in some communities.

People in the project areas in North Kivu, **DR Congo**, are very excited about the possibility of producing safe drinking water for their families through SODIS. The limited availability of PET bottles is a constraint to scaling up of SODIS in this area, however. At present, empty bottles are collected by UN staff based in the project area. In view of the current cholera epidemic, the interest in the method among water users and development organizations has increased even further: villages using SODIS only have very few cases of cholera, while neighboring villages are strongly hit by the epidemic.

SODIS also helps to protect users from a current cholera epidemic in the slums of Epworth and Hopley Farm in Harare, **Zimbabwe**. The SODIS promotion project in this country is linked to a socio-scientific research project investigating the effect of different promotion strategies on the uptake of the method. The study found uptake levels of SODIS between 10% and 90%, depending on the promotion strategy (article in preparation).

**New SODIS projects** were recently approved for implementation in the following countries:

- **Cameroon** (implemented by Geneva University, Yaoundé University, Aquacare, WHO)
- **New Delhi, India** (implemented by Development Alternatives)
- **Papua New Guinea** (implemented by ATprojects. Inc.)

## Spotlight: SODIS projects in Latin America



In Latin America, the **Fundación SODIS** promotes household water treatment technologies - including SODIS - and improved hygiene in seven countries in Central America and the Andean region. The Fundación SODIS currently implements 21 projects in Bolivia, Peru, Ecuador, Nicaragua, El Salvador, Honduras and Guatemala. Through these projects, about one million people will receive training in 2009.

In the Andean regions of **Bolivia**, Fundación Sodis implements a project in collaboration with Save the Children, targeting 100'000 children in schools and 51'000 families. Although the promotion through schools is an important component in almost all projects in Latin America, this is the first project in which schools are the principal targets. This new approach is based on the experience that children not only learn more easily than adults, but are also more likely to transform the acquired knowledge into habits. A second project in Bolivia, implemented in collaboration with the NGO-Association PROCOSI, focuses on mass communication methods.

In **Ecuador**, a collaborative project - involving the Ministry of Public Health, the Ministry of Infrastructure, Plan International, and Fundación Sodis - aims to train 25'000 families in the tropical coastal provinces. New projects are designed in collaboration with the Ministry of Health to reach 15'000 families in the lowlands of the country.

In **Honduras**, the Fundación Sodis implements hygiene and water treatment / SODIS projects in peri-urban areas through a collaboration with the local water supply company of Tegucigalpa (8000 families) and the regional office of the Ministry of Health in Tegucigalpa (9000 families).

In **Nicaragua**, projects are currently implemented in collaboration with the NGO-Association NicaSalud (target 20'000 families), and Save the Children (30'000 families, mainly indigenous people at the Atlantic coast).

Through joint pilot projects and high quality implementation of household water treatment and hygiene promotion, Fundación Sodis has established strong relationships and increasing levels of collaboration with national ministries and bi- or multinational donor agencies like UNICEF, World Bank, or USAID, in several countries. SODIS is well established in projects with governments at different levels, from municipalities to national ministries. SODIS promotion is integrated in projects of multinational organizations, such as UNICEF, and is part of major projects involving international NGOs. In Latin America, SODIS has reached recognition as a very effective technique to improve peoples life conditions not only in rural but also in suburban areas.

Experiences from projects in Latin America show that behavior changes can more easily be solidified into sustainable habits when campaigns focus on school children, are organized around the school institutional environment, and include mass media campaigns in addition to house-to-house promotion.



More information: [www.fundacionsodis.org](http://www.fundacionsodis.org)

## Internet resources

SODIS is featured on different websites on water supply and treatment, as well as in technical sheets and guidelines published by different organizations involved in water supply, sanitation and hygiene programs, e.g.:

- [UNICEF](#)
- [ICRC](#)
- [WaterAid](#)
- [WHO](#)
- [USAID Hygiene Improvement Project](#)
- [Center for Affordable and Sustainable Technologies CAWST](#)
- [Akvopedia](#)
- [National Academy of Science / Global Health and Education Foundation](#): water treatment decision tool

New SODIS videos are available (more SODIS videos are available on [YouTube](#))

- [Sri Lanka](#) (in English)
- [Kenya CNN \(1\)](#), [Kenya CNN \(2\)](#) (in English)
- [Zambia](#) (in English)
- [Papua New Guinea](#) (in English)
- [SODIS documentary](#) (in Spanish)
- [Household water treatment](#) (Animation)

## Household water treatment and safe storage (HWTS) news

National level workshops on household water treatment and safe storage have been organized by WHO in different countries, e.g.: Laos (June 25, 2008), Vietnam (Nov 17, 2008), and Tanzania (Feb 4-5 2009). Such events offers excellent opportunities for organizations involved in the promotion of technologies for household water treatment and safe storage to share their experiences and lessons learnt, and to consolidate the growing commitment of international organizations to support HWTS initiatives.

The Technical Meeting of the WHO's Household Water Treatment & Safe Storage Network will take place in Dublin, Ireland, on September 21-23 2009. [More information](#)

A comprehensive report on the status quo of the dissemination and application of household water treatment technologies, and on the potential of scaling up promotion of related technologies has been published by the WHO. [Download](#)

## Scientific Publications

The following articles have been published in the last year. Further publications are listed on the SODIS webpage ([www.sodis.ch](http://www.sodis.ch)).

### SODIS efficiency

Ubomba-Jaswa E, Boyle MAR, McGuigan KG (2008) [Inactivation of enteropathogenic E. coli by solar disinfection \(SODIS\) under simulated sunlight conditions](#). *Journal of Physics Conference Series* 101(12003). doi: 10.1088/1742-6596/101/1/012003

*SODIS inactivation of enteropathogenic E. coli (EPEC) is reported under simulated sunlight conditions and following a natural temperature profile. After 4 hours exposure EPEC was completely inactivated (7 log reduction) by SODIS.*

Ubomba-Jaswa E, Navntoft C, Polo-López MI, Fernandez-Ibáñez P, McGuigan KG (2009) [Solar disinfection of drinking water \(SODIS\): an investigation of the effect of UV-A dose on inactivation efficiency](#). *Photochem Photobiol Sci.* 8(5): 587-95.

*This study investigated the effect of solar UV-A irradiance and solar UV-A dose on the inactivation of Escherichia coli K-12 using solar disinfection (SODIS). Results showed that inactivation from approximately 1mio CFU/mL to below the detection level 4 CFU/mL for E. coli K-12, is a function of the total uninterrupted dose delivered to the bacteria and that the minimum dose should be >108 kJ/m<sup>2</sup> for the conditions described (spectral range of 0.295-0.385 microm).*

Boyle, M, Sichel, C, Fernandez-Ibáñez, P, Arias-Quiroz, GB, Iriarte-Puña, M, Mercado, A, Ubomba-Jaswa, E, McGuigan, KG (2008). [Bactericidal effect of solar water disinfection under real sunlight conditions](#). *Applied and Environmental Microbiology* 74 (10): 2997-3001.

*Batch solar disinfection (SODIS) inactivation kinetics are reported for Campylobacter jejuni (exposure time for complete inactivation, i.e. at least 4-log-unit reduction and below the limit of detection: 20 min), Yersinia enterocolitica (150 min), enteropathogenic Escherichia coli (90 min), Staphylococcus epidermidis (45 min), and endospores of Bacillus subtilis (longer exposure required) in strong natural sunlight in Spain and Bolivia.*

Meera V and Ahammed MM (2008) [Solar disinfection for household treatment of roof-harvested rainwater](#). *Water Science & Technology: Water Supply* 8(2):153–160. doi:10.2166/ws.2008.054

*The effectiveness of solar disinfection in treating roof-harvested rainwater contaminated with microorganisms was evaluated. Effects of various parameters such as turbidity, solar intensity, type of organisms and bottle volume on bacterial inactivation were studied. Complete inactivation of total coliforms was observed in 6 h when solar radiation exceeded ~500 W/m<sup>2</sup>. Moderate turbidity (38 NTU) did not reduce the inactivation efficiency, but slightly enhanced it. No regrowth of microorganisms was observed after 24 h following solar disinfection.*

Bosshard F, Berney M, Scheifele M, Weilenmann HU, Egli T. (2009) [Solar disinfection \(SODIS\) and subsequent dark storage of Salmonella typhimurium and Shigella flexneri monitored by flow cytometry](#). *Microbiology* 155(4):1310-7.

*The effect of SODIS on two important enteric pathogens, Shigella flexneri and Salmonella typhimurium. The respiratory chain of enteric bacteria was identified to be a likely target of sunlight and UVA irradiation. Furthermore, during dark storage after irradiation, the physiological state of the bacterial cells continued to deteriorate even in the absence of irradiation: apparently the cells were unable to repair damage. Storage of bottles after irradiation does not allow regrowth of inactivated bacterial cells.*

Gómez-Couso H, Fontán-Saínez M, Sichel C, Fernández-Ibáñez P, Ares-Mazás E. (2009) [Efficacy of the solar water disinfection method in turbid waters experimentally contaminated with Cryptosporidium parvum oocysts under real field conditions](#). *Trop. Med. Int. Health* 14(6):620-7.

*The study aimed to investigate the efficacy of the solar water disinfection (SODIS) method for inactivating Cryptosporidium parvum oocysts in turbid waters using 1.5 l PET bottles under natural sunlight. SODIS method significantly reduced the potential viability of C. parvum oocysts, although longer exposure periods appear to be required than those established for the bacterial pathogens usually tested in SODIS assays.*

King, BJ, Hoefel D, Daminato PD, Fanok S, and Monis PT (2008) [Solar UV reduces \*Cryptosporidium parvum\* oocyst infectivity in environmental waters](#). *Journal of Applied Microbiology* 104(5):1311–1323.

*This study investigated the effect of solar radiation on *Cryptosporidium parvum* in tap and environmental waters. Outdoor tank experiments and a cell culture infectivity assay were used to measure solar inactivation of *C. parvum* oocysts. Experiments conducted on days with different levels of solar insolation identified rapid inactivation of oocysts in tap water (up to 90% inactivation within the first hour).*

Gómez-Couso H, Fontán-Sainz M, McGuigan KG, Ares-Mazás E. (2009) [Effect of the radiation intensity, water turbidity and exposure time on the survival of \*Cryptosporidium\* during simulated solar disinfection of drinking water](#). *Acta Tropica* 112(1):43-8.

*A complete multi-factorial mathematical model was used to investigate the combined effects of the intensity of solar radiation (200, 600 and 900W/m<sup>2</sup> in the 320nm to 10µm range), water turbidity (5, 100 and 300 NTU) and exposure time (4, 8 and 12h) on the viability and infectivity of *Cryptosporidium parvum* oocysts during simulated SODIS procedures at a constant temperature of 30 degrees C. All three factors had significant effects ( $p < 0.05$ ) on *C. parvum* survival. However, the parameter with the greatest effect was the intensity of radiation. Levels  $\geq 600\text{W/m}^2$ . Times of exposure between 8 and 12h were required to reduce the oocyst infectivity in water samples with different degrees of turbidity.*

Navntoft C, Ubomba-Jaswa E, McGuigan KG, Fernández-Ibáñez P (2008) [Effectiveness of solar disinfection using batch reactors with non-imaging aluminium reflectors under real conditions: Natural well-water and solar light](#). *Journal of Photochemistry and Photobiology B: Biology* 93 (2008) 155–161.

*Inactivation kinetics are reported for suspensions of *Escherichia coli* in well-water using compound parabolic collector (CPC) mirrors to enhance the efficiency of solar disinfection (SODIS). The use of CPC has been proven to be a good technological enhancement to inactivate bacteria (complete inactivation one hour sooner than the system fitted with no CPC on clear days).*

Fisher, MB, Keenan, CR, Nelson, KL, Voelker, BM (2008). [Speeding up solar disinfection \(SODIS\): Effects of hydrogen peroxide, temperature, pH, and copper plus ascorbate on the photoinactivation of \*E. coli\*](#). *Journal of Water and Health* 6(1):35-51.

*This research shows that a number of low-cost additives are capable of accelerating SODIS. These additives included 100-1000 mM hydrogen peroxide, 0.5 – 1% lemon and lime juice, and copper metal or aqueous copper plus ascorbate, with or without hydrogen peroxide.*

Davies CM, Roser DJ, Feitz AJ, Ashbolt NJ (2009) [Solar radiation disinfection of drinking water at temperate latitudes: inactivation rates for an optimised reactor configuration](#). *Water Research* 43(3):643-52.

*This study analyzed the solar radiation-driven inactivation *Enterococcus faecalis*, *Clostridium sporogenes* spores, and P22 bacteriophage exposed to natural sunlight in 30-L reaction vessels for 6h. The optimised reactor design achieved S90 values (cumulative exposure required for 90% reduction) for the test microorganisms in the range 0.63-1.82 MJ/m<sup>2</sup> of Global Solar Exposure, consistent with those measured by other researchers (ca 1-10 MJ/m<sup>2</sup>). High turbidity (840-920 NTU) only reduced the S(90) value by <40%.*

## SODIS promotion and acceptance by water users; health impact

The technical efficiency of solar water disinfection under different conditions has been tested through numerous studies. Less knowledge is available on the factors that support or limit the sustainable application of SODIS among water users in different geographical and socio-cultural contexts. A number of studies have been published recently illustrating the factors and dynamics that influence the adoption rates related to SODIS in areas where SODIS promotion projects have been conducted.

The potential maximum level of SODIS application depends, among other factors, on the actual and felt need to improve the drinking water quality. The maximum expected application rate may therefore be lower than 100% of all water users in a target area, if some of households already have access to safe drinking water or apply another effective method for water treatment and safe storage. The application rates (and the potential success of a SODIS promotion project) may also widely vary among those water users that consume unsafe water and could benefit from SODIS (or other HWTS option). The following articles illustrate different variables that determine the uptake of SODIS in different intervention areas. Important components of successful SODIS

promotion programs include awareness building through information campaigns, persuasion through motivated and respected promoters, and reminders/ prompts for users (stickers, etc.).

Moser S, Mosler HJ (2008) [Differences in influence patterns between groups predicting the adoption of a solar disinfection technology for drinking water in Bolivia](#). *Social Science & Medicine* 67(4):497-504

*This article examines predictors for adopting SODIS during the diffusion process. A field survey among 644 households in Bolivia was conducted. Early adoption was predicted by increased involvement in the topic of drinking water. Adoption in the middle of the diffusion process was predicted by increased involvement by opinion leaders and by recognition of a majority supporting the technology. Late adoption was predicted by recognition that a majority had already adopted.*

Heri S, Mosler HJ (2008) [Factors affecting the diffusion of solar water disinfection: A field study in Bolivia](#). *Health Education & Behavior* 35(4):541-560.

*This study among 644 households examines a broad array of theory-based factors derived from diffusion research that affect the current and intended use of SODIS. The perceived attributes of an innovation, the nature of the social system in which it is diffused, the extent of change agents' promotional efforts in diffusing it, and the nature of the communication channels used were operationalized. 9 of the 16 factors derived from diffusion research contributed significantly to predicting the current use of SODIS.*

Murinda S, Kraemer S (2008) [The potential of solar water disinfection as a household water treatment method in peri-urban Zimbabwe](#). *Physics and Chemistry of the Earth* 33(8-13):829-832.

*A survey was conducted to explore the feasibility and necessity of introducing SODIS in peri-urban communities of Zimbabwe. Most households cannot afford basic water treatment like boiling as firewood is expensive. Amongst the people who had heard about SODIS before the study, usage was high. Plastic PET bottles, which were used for the SODIS experiments are currently unavailable and this has been identified as a potential hindrance to the successful implementation of SODIS.*

Meierhofer R, Landolt G (2010) [Factors supporting the sustained use of solar water disinfection - Experiences from a global promotion and dissemination programme](#). *Desalination* 251:144-151.

*To date, SODIS has been promoted in 33 developing countries through information and awareness campaigns, training and advising of the public sector (government institutions), networking activities, as well as user training at the grassroots level. The method is currently used by more than 2 million people. This paper highlights key determinants for acceptance and sustained use of SODIS, i.e. local availability of bottles, repeated promotion and training programs, motivation and commitment of promoters, educational level of users, social pressure, and institutional aspects.*

Gurung P, Grimm B, Autenrieth M (2009) [Disseminating the SODIS method: Which approach is most effective?](#) *Waterlines* 28(2): 130-143.

*This article implements the effectiveness of two different approaches to scale up promotion of SODIS in 8 Asian and African countries: i) through local partner NGO, and ii) through partnerships with government agencies. Two project case examples are presented (Uzbekistan and South India). The article concludes that working with the government resulted in greater scale and more sustainable results although this approach also involved more bureaucracy and took longer.*

Graf J, Meierhofer R, Wegelin M, Mosler H-J (2008) [Water disinfection and hygiene behaviour in an urban slum in Kenya: impact on childhood diarrhoea and influence of beliefs](#). *Int. J. Environ. Health Res.* 18(5):335-355.

*This study investigated the factors affecting the incidence of diarrhea among young children in urban slums in a shanty town in Nairobi, Kenya: consumption of safe drinks, hygiene behavior, cleanliness of household surroundings and the quality of raw water. 500 households were surveyed. Analysis with regression models showed that two out of the four postulated factors were significant: percentage of safe water consumption and household hygiene. Biomedical knowledge of children's diarrhea as well as the perceived social norm for treating water was associated with the use of SODIS and good hygiene.*

Mäusezahl D, Christen A, Pacheco GD, Tellez FA, Iriarte M, et al. (2009) [Solar Drinking Water Disinfection \(SODIS\) to Reduce Childhood Diarrhoea in Rural Bolivia: A Cluster-Randomized, Controlled Trial](#). *PLoS Med* 6(8): e1000125. doi:10.1371/journal.pmed.1000125.

A cluster-randomized controlled trial in 22 rural communities in Bolivia aimed to evaluate the effect of SODIS in reducing diarrhoea. A 19% reduction of diarrhea was observed among the intervention group as compared to the control group - a result that was not statistically significant, however. The very low compliance and inconsistent application of SODIS within the intervention group (<14%) can explain the absence of a clear health effect. For other studies demonstrating the health impact of SODIS, see [www.sodis.ch](http://www.sodis.ch).

## Leaching of chemical substances from PET bottles

A recent article by Schmid et al. on the possible release of plasticizers and other organic compounds from PET bottles confirms earlier findings that no harmful substances migrate from PET material into the water during the SODIS process in significant quantities. A study conducted by the Indian Institute of Technology in Chennai (unpublished) with PET bottles of different big and local soft drink and water brands and from different parts of India yielded the same result.

Schmid P, Kohler M, Meierhofer R, Luzi S, Wegelin M (2008) [Does the reuse of PET bottles during solar water disinfection pose a health risk due to the migration of plasticisers and other chemicals into the water?](#) *Water Research* 42(20):5054-5060. doi:10.1016/j.watres.2008.09.025

*The transfer of organic substances from PET to water was investigated under SODIS conditions. Only food flavour constituents of previous bottle contents could be identified in SODIS treated water above a detection limit of 1 µg/L. Quantitative determination of plasticisers DEHA and DEHP revealed maximum concentrations g in the same range as levels of these compounds reported in studies on commercial bottled water. The impact of storage conditions (sunlight exposure and temperature) was not very distinct.*

Keresztes S, Tatár E, Mihucz VG, Virág I, Majdik C, and Záray G 2009 [Leaching of antimony from polyethylene terephthalate \(PET\) bottles into mineral water](#). *Science of the Total Environment* 407(16): 4731-4735. doi:10.1016/j.scitotenv.2009.04.025

*The Antimony (Sb) leaching from polyethylene terephthalate (PET) package material into 10 different brands of still and sparkling Hungarian mineral water purchased in supermarkets was investigated. Generally, the Sb concentration of still mineral water was lower than that of sparkling in the case of identical storage time. Storage time (10–950 days), temperature (22 °C–70 °C), illumination (dark vs. 23 W daylight lamp for 116 h) as well as bottle volume (0.5, 1.0 and 1.5 L) were taken into consideration. Under certain extreme light and temperature storage conditions, the Sb concentration of some samples exceeded 2ng/mL (WHO drinking water threshold: 20ng/mL).*

## Further information / contact

[www.eawaq.ch](http://www.eawaq.ch)

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