



**Roam Technology**

**Application information**

AGRICULTURE

## **A sustainable way to secure your growth**



### **HUWA-SAN TR-50 – A new generation of safe disinfection**

*Ensure your water quality in combination with efficient fertilizers*

*Optimize root growth, oxygen intake and general health of the crop*

*Increase the yield and reduce the risk of infection*

#### **Advantages of Huwa-San AGRO**

- Broad spectrum activity (bacteria, fungi, viruses)
- Secures optimal supply of your fertilizer
- Increasing productivity while decreasing pesticide burden
- Active in wide range of pH values and temperatures even in low concentrations
- Thanks to its unique formula Huwa-San AGRO works fast and powerfully without leaving a residual affecting the end product
- Optimizing the water house holding usage (drain water, recuperation of the fertilizing solutions,...)
- Algae prevention
- Prevents the water systems from getting blocked by removing biofilm, prevents re-growth of the biofilm and clogging of nozzles in drip lines
- Easy-to-use: can be easily applied and measured
- No accumulation in plants. It doesn't affect your crops: colorless, odorless, tasteless
- Completely biodegradable into water and oxygen -> no residue in waste water
- No harmful by-products

#### **Applications**

- Disinfection of irrigation system
- Removal of biofilm in water systems (sprinkler system, drip irrigation, circulation water, storage tanks)
- Disinfection of surfaces, floors, walls and equipment in agriculture (greenhouses, hydroculture, hydroponics, ...)
- Surface disinfection of total greenhouses through vaporization of the product ("fogging")



### Guaranteed clean water

Due to its unique formula, the product is many times more efficient (see table 1) and stable than regular hydrogen peroxide. The stable compound ensures that vegetables, ornamentals and fruit, get optimal water quality throughout the entire irrigation system.

Effectiveness tests for the application of Huwa-San indicate an increased activity of Huwa-San TR-50 relative to unstabilized hydrogen peroxide. This was tested on pseudomonas (slime-forming bacteria), starting from 75 000 CFU (colony-forming equivalents).

	Huwa-San TR50	Hydrogen peroxide
Immediately	NTK	NTK
After 5 min.	0	NTK
After 30 min.	0	NTK
After 1 hour.	0	31
After 2 hours	0	7

Table 1. Test conducted by Derva (2012). The efficiency of Huwa-San TR-50 on pseudomonas aeruginosa (75000 CFU) is compared with that of hydrogen peroxide. The dosage is 20 ppm. NTK = unquantifiable.



Figure 1. Left: illustration of a dosing system with a pump controlled by a water meter. Concentration: 20-40 ppm. Right: simple measurement at the end of the pipeline by means of a test strip.

### Removes biofilm – ensures a clean piping system - prevents clogging

Prolonged use of the pipe line, enhances the risk of clogging. This is, in many cases, due to the formation of biofilm on the inside surfaces. The drip systems can become clogged as well. By using higher doses of Huwa-San TR-50, you can remove the biofilm and ensure clean irrigation. In 2004, it was already demonstrated, in co-operation with the VITO, that biofilm can be removed with Huwa-San at a higher concentration, and that re-growth can be avoided by adding a constant maintenance dose of 20 to 40 ppm Huwa-San TR-50.



## Disinfection of surfaces

### Through fogging of the product between 2 crops

Huwa-San TR-50 can be fogged and thus forms an environmentally friendly and safe alternative to eg. Formalin. Through a simple measurement of the concentration in the air (see photo below at a pepper grower in the Netherlands) it can be guaranteed that the disinfection has been 100% effective.



**Figure 2.** At a pepper grower in the Netherlands a greenhouse with an area of 4 hectares was fogged with Huwa-San TR-50. Left: greenhouse with plants during cultivation period. Middle: greenhouse after clearing between two crops. Right: fogging in the greenhouse between two crops. The mist was generated with the hot fogger from the customer. The concentration in the air was measured in order to ensure effective disinfection of all surfaces.

### By regular surface disinfection: floors, walls, mats

Huwa-San TR-50 can also be applied to critical surfaces in the traditional way. It is also possible to apply the product via an ebb and flood system.



### Through disinfection of smaller surfaces: materials and growing tables

Your growing tables and all your required materials can also be disinfected by spraying a dilute concentrate of Huwa-San TR-50 or by full immersion of your materials.



### Disinfection and cleaning with Huwa-San TR-50 (ppm = ml/m<sup>3</sup>)

#### Disinfection of irrigation water

Usage	Dilution		Application
Drip- and sprinkler system, (hydroponics)	40ppm (ml/m <sup>3</sup> ) starting dose → 20ppm in the pipe line		Dosage is best controlled by a measuring pump by a water meter or flow meter. Check the concentration with test strips at the height of the tap point, or at the furthest end of the pipe.
Day supply - and drain silo	100-150 ppm	12 till 24h contact time	The dosage can be manually added in the day supply or drain silo. <u>Important</u> : the indicated dosage is only an indication or a guideline. The frequency and dosage depends on the degree of contamination and contact time. The dosage should therefore always be aligned based on advice from one of our employees.
	200-400 ppm	1 till 2h contact time	
	Contact time depends on the contamination of the system and the reaction time available.		
Cleaning of the system – removal of biofilm	0.1-0.2%	12 tot 24h contact time	Bring the concentration in the pipe line through the storage tank with a dosing pump. Check the concentration with test strips at the height of the tap point, or at the furthest end of the pipe. Respect the indicated contact time. The product will now break down the biofilm and pollution on inner surfaces during the reaction time. Afterwards rinse the whole system carefully and <u>do not use this water for the crop</u>
	1-2%	1 tot 2h contact time	
	Contact time depends on the contamination of the system and the reaction time available.		
Disinfection of the water tanks (against algae)	In the presence of algae:		When the algae is already present, initially an increased dosage has to be applied. Afterwards, remove the algae manually. In order to prevent further growth, it is important to keep the concentration constantly maintained. Check the concentration with test
	0.1%	12 tot 24h contact time	
	1-2%	1 tot 2h contact time	
	Algae prevention :		
	20 ppm	continuous	





Disinfection of surfaces

Fogging	125 - 250L per ha depending on the fogging technique and the building of mist	Min. 1h contact time	Use a spray device with droplet-size 0-30µm (max.) To generate the finest mist. After the initial phase disinfect for 1 hour. Turn on the fans during dosing. Ensure adequate ventilation afterwards. The room can be taken re-used within 4 hours.
Surface disinfection (spraying or through ebb and flood system)	1000-2000L per ha 6%	1 tot 2h contact time	This method can be used to disinfect smaller surfaces or materials. For small or large drop-let size using respectively 1000L or 2000L per hectare. <b>Important:</b> If possible, before removing excess dirt off and inorganic material.
Materials through immersion or spray	2% 6%	1h 5min.	Make a solution according to the prescribed concentration. Immerse the material completely or spray the material until it is sufficiently wet. Do not reuse dilution.

Disinfecting barriers for foot disinfection

Foot baths or -mats	8%	A few sec.	Replace the dilution daily or weekly, depending on use and contamination.
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Customized customers advice

- Are you not familiar with the use of Huwa-San TR-50?
- Are you familiar with our product but do you wish to use Huwa-San TR-50 for a new application?
- Do you have doubts about dosing method or contact time?
- Do you need more technical advise?

For all your questions you can always contact one of our Roam Technology employees. Please feel free to contact us and we will help you further.



Disclaimer

Huwa-San TR-50 is an internationally available product that is subject to country-specific legislation and registrations. Consequently, there is only a certain set of products available in some countries. For more information regarding a specific application, please contact us or your local distributor. In Belgium, only Huwa-San TR-50 (397b) and Huwa-San TR-5 (3300B) are available. In the Netherlands only Huwa-San TR-50 (12677N) is available. Use biocides in a safe way. Before use please read carefully the information provided on the label and product regulations.