SANIKILL
Patented Technology
The Sanipur monochloramine solution for the Prevention of Legionellosis

In order to effectively remove Legionella from water pipeworks it is necessary to use a continuous disinfection system. State-of-the-art technologies are based on chlorine/hypochlorite or chlorine dioxide.

In the last years, the diffusion of plastic pipe systems is causing several problems since these disinfectants can increase the ageing of the plastic material. The mechanism which causes this event is the oxidation of the plasticizers and the hardening of the pipes which eventually induces micro-crackings on the pipe walls. Mechanical stresses due to solicitations can lead to pipe breaking.

To avoid this inconvenient our R&D division developed a new building-size disinfection equipment based on monochloramine.

Monochloramine is an US-EPA and WHO approved drinking water disinfectant, widely used in the United States and increasingly used also in Europe. It's a weaker oxidant compared to chlorine or chlorine dioxide and thanks to this performance it is able to penetrate biofilms better. Extensive studies carried out by our R&D dept. in collaboration with European and American Scientific Institutions showed a very high efficacy of our monochloramine system against Legionella without harming any material (copper, galvanized or stainless steel, polyolefin plastic pipings). The Sanikill system is patent pending.

**Advantages of the Sanikill monochloramine:**
- Very low disinfection by-products (THM's below detection-limit)
- Compatible with plastic pipings like polyethylene (PE, PEx), polypropylene (PP, PPr), polyvinylchloride (PVC, U-PVC, C-PVC)
- Better biofilm penetration
- No taste and odor complains
- Active at alcaline pH
- Safe and reliable

The synthesis of monochloramine:

\[
\text{NH}_3 \text{(aq) + HOCl } \rightarrow \text{ NH}_2\text{Cl + H}_2\text{O}
\]

![effect of oxidant biocides on plastic piping](image)
Here follows some results of the on field application on the Sanikill monochloramine system:

After introducing Sanikill monochloramine into the hot water system, this health-case facility observed a dramatic reduction in Legionella contamination.

The comparison of the state-of-the-art Legionella prevention disinfection technologies shows the high efficacy of Sanikill monochloramine system.

Sanipur developed the nes Sanikill building-size on site monochloramine generator which operate with the following diluted and non-toxic reagents:

A. Enoxin P10 Plus
B. Zebion 50

The equipment is completely automated, remotely controllable and equipped with high-standard safety devices. Sanikill system reliability is due to its ability to produce high purity monochloramine directly into the hot water pipeworks and to limit the possible by-products.
Monochloramine generators use properly concentrated reagents as ammonia and chlorine precursors for the wet production of a monochloramine solution. Both reagents are dosed in the production reactor by means of electronically-controlled electromagnetic dosing pumps. An electronic control unit with programmable microprocessor and alphanumeric display manages all the production, control and alarm phases of the plant; in detail, it modulates the reagents dosage by means of two dosing pumps, automatically optimizing monochloramine production (and reducing di- and trichloramine production to zero) within a 0..100 % field through normed 0/4..20 mA signals or impulse signals coming from the outside. Reagents concentrations can be set as required. The system can be equipped with a remote control system, in order to remotely manage its settings and alarms.

### Main characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Production (g/h di NH₂Cl)</th>
<th>Max. press. (Bar)</th>
<th>Pump type ammonia</th>
<th>Pump type chlorine</th>
<th>Weight Kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCA 500</td>
<td>500</td>
<td>8</td>
<td>TH 1402</td>
<td>TH 1402</td>
<td>46</td>
</tr>
</tbody>
</table>

### Electrical features

- **Standard power supply**: 220 Vac monofase, Installed power 150 W
- **Option**: 110 Vac monofase - 12 Vdc
- **Installation**: Wall-mounted, Working temperature +5...+40°C
- **Protection**: IP 54

- **Control functions**: Manual, Automatic according to treated capacity, Start-up
- **Options**: Dilution circulator installed on the plant, GSM remote alarm and control system

### Dimensions – fittings

- **MOD. 500**: 650 x 950 x 300 mm (L x H x p)
- **IN/OUT fittings predilution line**: cartella in PVC-U per incollaggio d.25 – DN 20