

Making it safe to use Hydrogen as a carrier Implementing our UCS-1000 solution

Our client

Adama is one of the world's leading crop protection companies. It has a history that spans over more than 70 years. In 2011 it became part of the ChemChina group and, since 2017, Adama is the only integrated Global-China crop protection company. Adama has chemical synthesis production facilities in Israel, China and Brazil; formulation facilities in Israel, China, India, Europe, North America and South America; and R&D facilities in Israel, China and India.

\$3.9B in sales

21 production sites

7000 people

60 subsidiary companies **100** presence in 100 countries

global product development companies The company's product portfolio is one of the world's largest. It has more than 270 active ingredients and more than 1,000 end-use products. Adama supplies efficient solutions to farmers across the full farming value-chain, including crop-protection, novel agricultural technologies, and complementary non-crop businesses.

Among their facilities is the Quality Control laboratory which counts 21 employees and is run by the QC Manager, **Dr. Sharona Zamir, PhD, MBA**. The laboratory works 24/7/365 to support and supplement the manufacturing process through:

- In Process Control (IPC), which accounts for most of their activity and plays an important role in making online process changes, if necessary
- Raw material testing
- Testing of end materials (COA)

ADAMA



• Environmental testing And more...

The laboratory is comprised of three labs:



During a month they check an average of:

300	4000	900	30
raw material	in process	samples of end products	cleaning
samples	sample tests		validation tests



A new laboratory was installed in a new building where the designers wanted to avoid the use of hoods due to aesthetic considerations. Therefore, they replaced the hoods with ventilators, which proved to be too big and inefficient. In one of the main Gas Chromatography (GC) tests for toxic materials, a split-release from a sample of of Chlorpyrifos and Diazinon, for two of Adama's main products, emanated unpleasant odors as well as unhealthy vapors. These are extremely toxic insecticides that could pose a threat to the health of those working in the lab environment. One option was to add hoods, but that came with its own challenges:

- It would have required them to change the existing lab structure by adding or changing lab pumps to ensure a bigger suction power.
- It went against the designers' plans and, even so, it would have not solved the smell problem entirely.



Adama representatives found out about Sion Technologies' **UCS-1000** and decided to give it a try. They were especially interested in the device's capability to burn all excess split chemicals, since this could be a complete problem solver for their laboratory situation.

They were right.

The installation was quick and followed by a short training session. The UCS-1000 was immediately implemented, and since they started using the device, the team hasn't faced any problem. What is more, the results were seen immediately as there was no residue smell whatsoever. The UCS-1000 is the only device that is capable of 100% solving the problem of toxic odor.

Added Benefits

Sion Technologies recommended that Adama should change the carrier gas from Helium to Hydrogen because of its multiple benefits, including the cost efficiency. As a result, Adama is now looking to reduce Helium costs for the entire QC and R&D laboratories to a total saving of \$200K a year. An additional new goal for the laboratory is to decrease run times by using Hydrogen as a carrier gas. These goals will also translate to the procurement department goals to reduce Helium

expenditure and raw materials cost reduction.



The Adama laboratory has been using the UCS-1000 without interruption since June 2018. During this time the device had zero downtime and no malfunctions.

Due to the extremely positive results, Adama decided to purchase an additional UCS-1000 as well as the new model UCS-2000 for one of their Agilent GCs that runs perchloromethyl mercaptan (PCMM).



The laboratory environment and the overall plant is safer. Numerous operational risks have been completely eliminated



The plant no longer needs to rely on any external suppliers







"The UCS is a genius invention. So simple to implement and use and strongly recommended." Adama QC Manager, Dr. Sharona Zamir, PhD, MBA

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Unique laboratory solutions, easy to use, efficient and cost-effective

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Sion was Founded in 2015 by leaders in the field of analytical device manufacturing. Sion Technologies develops advanced analytical laboratory instruments and associated support systems. The company's goal is to integrate knowledge, experience and ergonomics in the broad development of analytical products. Sion Technologies is on the road to becoming a world leader in Biotechnology, specializing in gas chromatography (GC), providing Hydrogen as an alternative to Helium in the chemical, petrochemical, pharmaceutical, pharma and environmental industries.