27th WORLD GAS CONFERENCE | JUNE 25-29 | WASHINGTON DC | 2018
IGU

Key factors to high accuracy of the odorization process at single users and isolated areas and methodology to assess it

Alessandro Menarbin, Operations Manager

Regas Srl, Italy

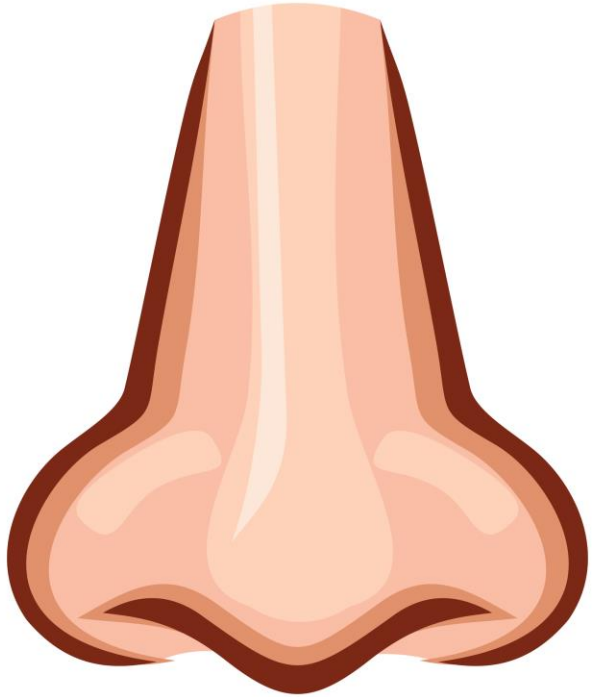
About Regas

- Technology provider to gas transmission and distribution companies
- Specialized in natural gas treatment and analysis
- Promotes the development of natural gas industry through the reduction of the impact on the environment
- Patented technologies, completely developed in-house
- 60 employees, 18m € turnover, IGU, CIG and Anigas member

regas
naturalgas progress

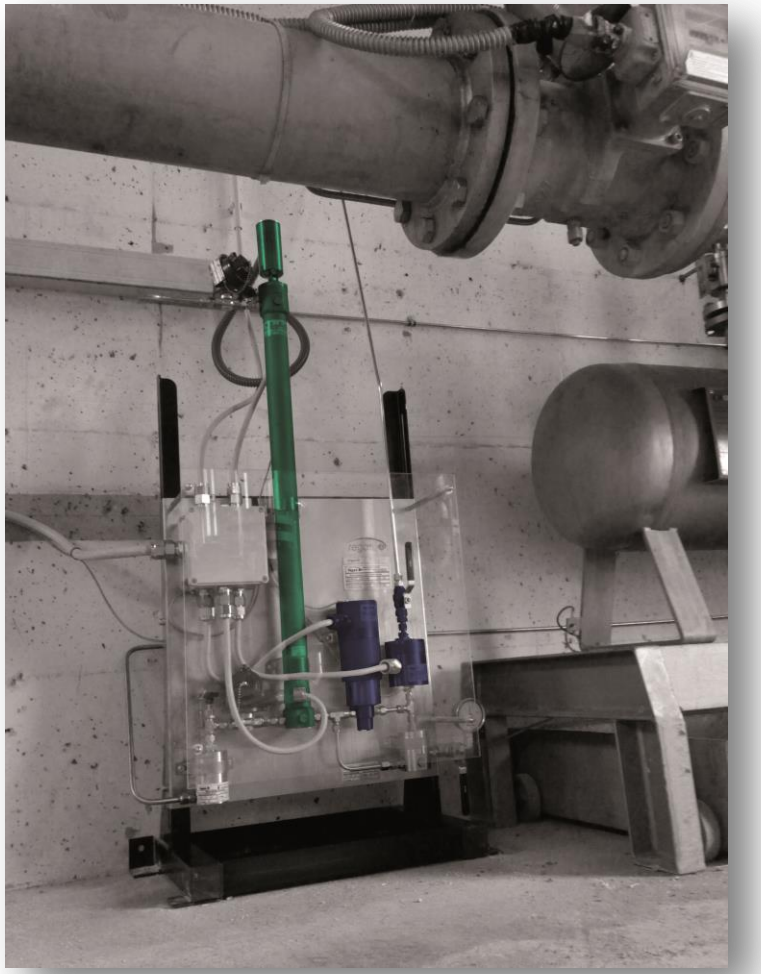
Odorization of natural gas – a critical process

- Different methods to odorize, depending on local regulations and technical standards
- Technical issues – pressure and flow rate changes; network lengths; different types of odorant
- Technological limitations – each odorization technology boasts peculiar features
- Each gas distribution network has its own configuration



Factors improving the performance of the odorization

- High resolution of the metering device
- Closed-loop check between the amount of the injected product and the flow rate
- Frequent and continuous “micro-injections”
- Adaptability of the injection pressure to the stream pressure changes



The main reason for it

Constantly odorized gas means that YOU ARE SAFE 24/7

Aims

Ensuring a constant odorant concentration level in the gas has further advantages:

- Lower emissions of sulphur compounds
- Reduction in false positive leaks

It also meets the new challenges in the natural gas market (e.g.: biomethane, micro-LNG, NGV)

Test bench for odorant injection systems

Specific equipment is needed:

- electric pulse-output emitter
- precision weighing balance
- Coriolis flow meter for liquids

1 – Test method of odorant injection devices

- Duration of the test: 100-120 minutes
- Simulation of the flow rate trend using a pulse-output emitter
- Set of the injection system to a fixed concentration ratio (e.g. 20 mg/scm)
- Usage of a dummy liquid with similar physical characteristics of the odorant that is needed to be tested (e.g.: diesel fuel to simulate TBM)
- Start of the test

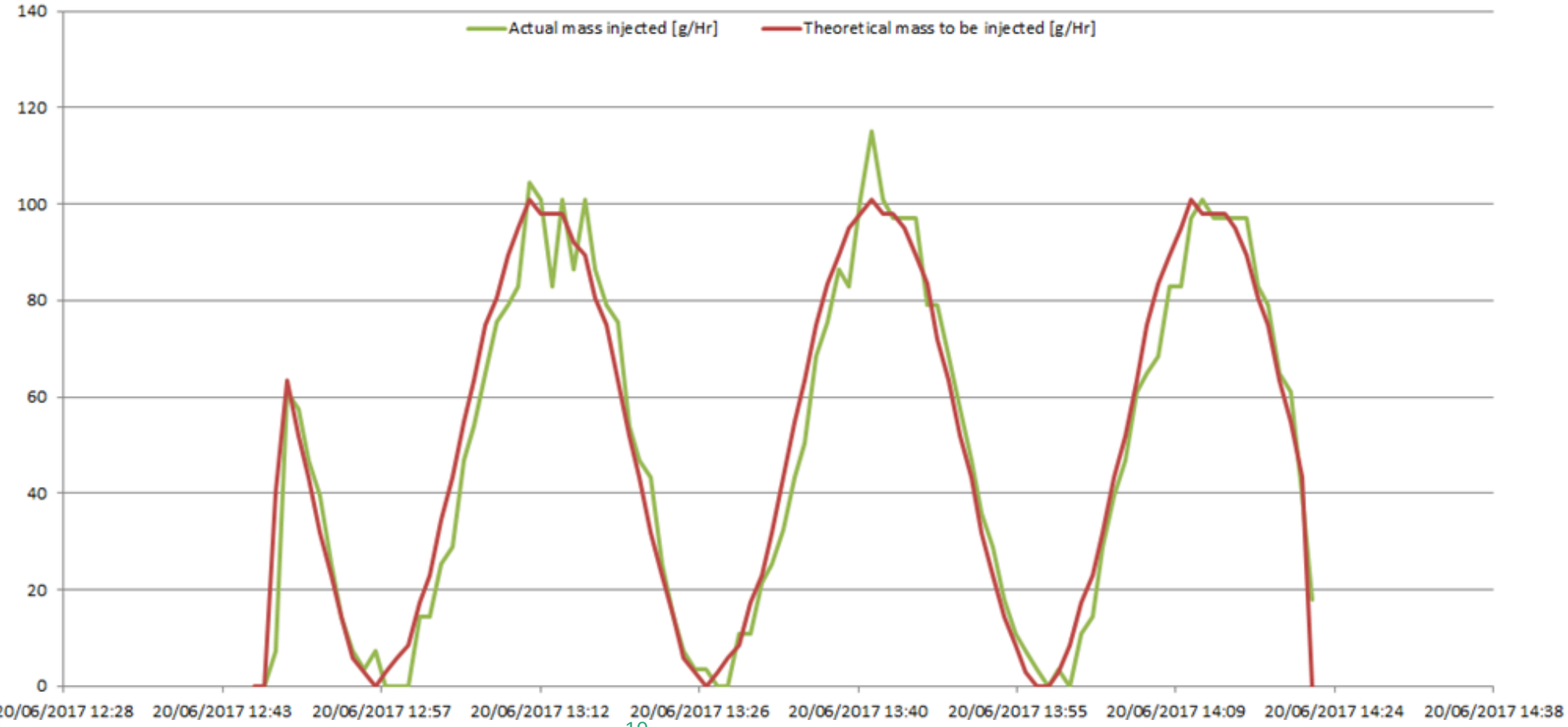
2 – Test method of odorant injection devices

- The pulse emitter outputs a varying instant flow rate, the total flowrate is calculated at the end of the test
- The theoretical mass of the injected odorant is calculated:

  Set concentration x Total flowrate =
  Theoretical mass of the odorant
  (if the system would be 100% accurate)
- The result is compared with the actual mass of the injected odorant, measured by the Coriolis meter
- The total mass measured by the Coriolis meter must be cross-checked with the data from the weighing balance
- A comparison graph is drawn

3 – Test method of odorant injection devices

Accuracy between ±5.00% can be considered acceptable



Conclusions

- Simple and reliable method
- Applicable to any type of odorant injection system
- Clear and comparable results

To test the equipment for odorization means to promote the awareness about safety in the gas networks

THANK YOU FOR YOUR ATTENTION

Alessandro Menarbin
Regas Srl – Milan
alessandro.menarbin@regas-italia.com
+39 342 05 75 824