

Review of PPC Operational Techniques at IQE Silicon Compounds September 2016

1. Management Techniques and Control

IQE Silicon is registered to ISO14001:2004 which is externally audited and verified by BSI to ensure suitable management systems are in place and used to minimise the environmental impact of our business activities. This system has been in place for eleven years during which period no major non-conformities have been raised by the external auditors.

The company is committed to continuous improvement as part of ISO 14001 and achieves this by means of internal audits and environmental improvement programmes. Additionally, where opportunities for improvement are identified during external audits these are incorporated into our own improvement action plan and re-audited before closure at the next scheduled external surveillance audit.

IQE Silicon is also registered to ISO9001:2008 which is also externally audited and verified by BSI and covers all supporting controls and procedures.

Both ISO systems are currently under review to adopt the updated standards ISO 14001:2015 & ISO 9001:2015 and implementation is currently planned for 2017.

2. Raw Materials (including Water)

a. We continue to recycle test silicon wafers in order to minimise waste and reduce the environmental burden of our activities.

b. The use of key gases and acids is optimised by the use of electronic control systems to minimise waste and processes review by the engineers to ensure optimal processes.

c. Residual process gases are wet scrubbed using BAT prior to release to atmosphere. End of life acids are disposed of using the BPEO.

d. Where practicable customer supplied packaging is always re-used to minimise waste. We currently estimate that around 99% of original packaging is used in this manner and where we cannot (usually down to damage to the packaging) we utilise packaging from other product received further minimising out waste stream.

e. The bulk sodium hydroxide tank continues to make a significant reduction in CO₂ emissions by our suppliers due to reduced frequency of deliveries is a

continued success and reduced our deliveries from approx. every 2 weeks to approx. once per Qtr.

f. The conversion of most documents to electronic format has significantly reduced the paper trail and storage requirement for records. Currently we are implementing tablet PC's to switch our product control plans to electronic format, making the final major reduction in paper usage.

3. Operating Techniques

The operating techniques are in principal the same as those listed in pages 27 to 45 of our original application except for the following significant point.

- a. Permit Variation: EA/EPR/BJ6968IY/VW2 now applies.

4. Waste and Handling Techniques / Recovery and Disposal

As part of our EMS improvement programme we currently recycle all of the following materials, glass, non-contaminated plastic, aluminium drinks cans, waste office paper and magazines and packaging pallets

With the Permit variation in place we have continued to reduce the significant quantity of contaminated resin we produce from the Chemsorbs as part of the gas abatement system.

General municipal waste is extremely low in volume as depicted in our annual reports.

WEE in the form of fluorescent tubes and SOL lamps is gradually reducing with the introduction of LED lighting (as depicted in the next section)

5. Energy Efficiency

Energy consumption continues to be a significant cost spend for IQE Silicon Compounds. We currently participate in a climate change levy scheme administered by the NMI this is now a combined target with IQE Europe

Energy efficiency programmes are captured within our EMS improvement programmes and subject to regular progress reviews. An example of this is a study of utilising Variable Speed pumps to upgrade our current constant speed pump and reduce flow and energy when not in use.

LED lighting installation has been started to supersede the fluorescent lighting, this will present a lower energy usage for the lighting of the FAB and drastically reduce the lighting waste currently seen with fluorescent and sodium lamps. The change to LED lighting is currently on hold due to internal building changes with the install of equipment for Cardiff University, once completed progression to completion will ensue.

6. Accidents prevention and control

IQE Silicon Compounds operates a non-conformance and corrective action system within its ISO14001 EMS. This system is robust and well used across all departments.

All reported incidents and near misses are reviewed on a monthly basis and, where practicable, corrective or preventative actions are implemented to prevent reoccurrence.

We have documented emergency procedures as part of our EMS. These procedures cover foreseeable emergencies including fire, gaseous release to atmosphere and spillage control.

7. Noise and Vibration

No design changes have occurred since the granting of the IPPC permit and the conditions for noise control still apply.

8. Monitoring

Monitoring is still as per the conditions laid down in our operating permit and related variation. We continue to use MCERTS test methods using competent i.e. MCERTS qualified external service providers for all stack emission point monitoring. Sample analysis is performed by a UKAS accredited laboratory.

9. Decommissioning

Our decommissioning plan remains unchanged from the original as it was when presented in line with Improvement Action 9.6 of our application.



IQE Silicon Compounds
Beech House
Cypress Drive
St Mellons
Cardiff
CF3 0LW

T. +44 (0)29 2083 7500
F. +44 (0)29 2083 7501
www.iqesilicon.com
E. info@iqesilicon.com

P. Carroll - Manufacturing Manager
S. Alder - HSE Manager
IQE Silicon Compounds
St Mellons
Cardiff