

**THE REVIEW OF THE AIR QUALITY OBJECTIVES (AQOS)
STAKEHOLDERS' ENGAGEMENT MEETING – COOKING EMISSION**

**Digest of Meeting
held on 28 August 2017 at 2:30p.m.
in Conference Room, 33/F., Revenue Tower, 5 Gloucester Road, Wanchai**

Present:

Environmental Protection Department (EPD)

Mr. Dave HO (Chairman)	Assistant Director of Environmental Protection (Air Policy)
Mr. Brian LAU	Principal Environmental Protection Officer (Air Policy)
Mr. CH KAN	Senior Environmental Protection Officer (Air Policy) 4
Dr. Jackie NG	Environmental Protection Officer (Air Policy) 12
Mr. Alan HUANG	Assistant Environmental Protection Officer (Air Policy) 41

Stakeholder representatives

15 attendees including representatives from
licensing consultants, equipment suppliers,
catering trades and utilities

AECOM Asia Co. Ltd (AECOM)

Mr. Karl AN	Consultant's representative
Mr. Simon WONG	Consultant's representative

Agenda Item 1 – Background of the AQOs Review

EPD welcomed the stakeholders to the engagement meeting, and briefed them on the background of the AQOs Review and the purpose of the meeting to seek their views on the possible measures in controlling the cooking emissions and the practicability for implementation.

2. **Consultant representative** of the AQOs Review Study (**AECOM**) gave a brief introduction on the background of cooking emission, current practice in controlling cooking emission and the brief description of the two possible control measures.

Agenda Item 2 – Discuss the practicability to further control the emissions from cooking

“Measure CF-1 Explore the feasibility of using new types of air pollution control equipment (e.g. disposable wool-fiber filter, UV-Ozone system) for cooking fume control in different types of restaurants”

3. The stakeholders raised the following comments on the operation and maintenance of air pollution control equipment (APCE) at the meeting:

- it was agreed that the electrostatic precipitators (EP) coupled with hydro-vents had been effective in removing cooking fumes. However, proper maintenance programme would be essential to maintain the high performance of the control equipment;
- while most of the restaurants would run their regular cleaning and sanitation program after shop closed every day, there might not be sufficient manpower resources to clean the APCE within the tight time schedule. For EP, to save up the time for cleaning the cell, stakeholders agreed that keeping an extra set of cell for replacement could help streamline the cleaning process but extra equipment cost would be incurred; and
- assigning kitchen workers or chef to clean the APCE would be difficult especially in some Japanese style Teppanyaki restaurants where there was a shortage of skilled workers and chef.

4. Regarding the feasibility of using different types of new APCE, deliberations of members and the conclusion are summarized in the **Annex**.

“Measure CF-2 Promote "low-emission" cooking (e.g. use of clean and efficient cooking stoves and healthy cooking style, etc.)”

5. The following comments on “low-emission” cooking at the meeting were raised:

- some trade representatives had already been promoting low-emission cooking as well as the idea of ‘cool kitchen’;
- Some stakeholders mentioned combustion of cooking oil particles under naked flame might induce extra emission while some other stakeholders responded that emissions caused by cooking activities were mainly due to the cooking methods irrespective of using electric or gas stoves. Some trade representatives indicated the amount of cooking oil used would have an impact on the emissions, such as deep fat frying cooking method.
- Some stakeholders expressed that the use of electric stoves in general would consume less energy and could help lower the temperature of the kitchen ; and
- the choice of cooking stoves would depend on the type of cooking method used for specific dishes. They would try to strike a balance between environmental protection and maintaining the food quality (e.g. taste).

6. The stakeholders opined that given the fierce competition of the catering business, the trade would continue to explore possible “low emission” cooking with a view to reducing their overheads and improving the emissions.

Agenda Item 3 - Any other business

7. A brief note summarizing the discussions of the meeting will be provided to Members for comment. It would then be uploaded to the EPD’s AQO review webpage for public reference.

8. The meeting was adjourned at 4:00p.m.

Discussions on different types of new air pollution control equipment (APCE)

Measure CF-1

Explore the feasibility of using new types of APCE (e.g. disposable wool-fiber filter, UV-Ozone system) for cooking fume control in different types of restaurants

Views from the members are summarised as follows:

A. Honeycomb activated carbon deodorize filter

- Activated carbon deodorize filters could induce back pressure problems as the filters are densely arranged which impede the air flow.
- It was normally installed after the APCP outside the kitchen area to treat cooking odour because of the potential fire hazard if installed inside kitchen.

B. Multi-stage combo filter

- Some restaurants used multi-stage combo filters as a replacement of hydrovent. Nevertheless, it had to be coupled with EP to achieve high cooking fume removal efficiency.

C. Wool-fibre filter:

- The application of disposable wool fibre filters are not common in Hong Kong but they have been used in Macau.
- The disposable filters may be practicable if under a reasonable capital cost.
- The regular replacement of disposable filters can maintain the high cooking fumes removal efficiency.
- Members are also concerned about the flammability of the wool-fiber filter and its potential fire hazard.
- The durability of the wool fibre, ease of maintenance and replacement are the major considerations for this type of disposable filters.

D. UV and Ozone system

- UV and Ozone system is a new technology and not yet commonly applied in local restaurants.
- In general, the system would be installed at those kitchen imposed strict requirement of food hygiene.
- UV and Ozone filter is considered as a replacement for hydrovent to avoid the splashing out of fine water droplets.

- High capital cost would be expected as the design and the specifications varied in different kitchens which need to be “tailor-made” for each system.
- The installation required a large space and may not be applicable for small or medium size restaurants.
- A designated team of specialist is required for the installation and maintenance of the system.
- One member mentioned that UV and ozone system is a technology for reducing emissions of volatile organic compounds from industrial processes. Variation of supply voltage, designed residence time and loading are factors affecting the removal efficiency. The performance on cooking fume removal was yet to be confirmed because of the limited applications.

E. Air Dilution system/ Odour Neutralization system:

- Stakeholders considered that these systems were neither an effective nor practicable means to reduce cooking fumes.

Conclusion

Subsequent to the discussions of various types of new APCE, the stakeholders generally considered that EP coupled with hydrovent was a mature, practicable and effective means to reduce cooking fume emissions. The Administration would collaborate with the trade to explore the feasibility of using other new APCE in reducing cooking fume emissions.