

**Advisory Council on Food and Environmental Hygiene**

**Study on “Cooking Oils in Use”**

**Purpose**

This paper briefs Members on the progress of the study on “cooking oils in use” and the formulation of the guidelines on good practice of using frying oils.

**Background**

2. The “substandard lard” incident in Taiwan in 2014 raised public concern in Hong Kong over the safety and quality of edible fats and oils. To strengthen the protection of the safety of edible fats and oils, the Government proposed to follow up along various aspects, including introducing administrative measures to regulate the recycling of “waste cooking oils”<sup>1</sup>, regulating the metallic contaminants and harmful substances in edible fats and oils<sup>2</sup>, and conducting a study on “cooking oils in use” so as to formulate guidelines on good practice of using frying oils for the trade’s reference.

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<sup>1</sup> To facilitate recycling and prevent “waste cooking oils” from being illegally processed into edible oils, the Food and Environmental Hygiene Department (FEHD) has imposed additional licensing conditions to require all restaurants, factory canteens, food factories and bakeries to hand over their “waste cooking oils” to collectors, processors and exporters registered by the Environmental Protection Department. Both parties are required to keep disposal/collection records accordingly. The new licensing conditions have come into effective gradually since November 2017. The Environment Bureau will also consider amendments to the Waste Disposal Ordinance (Cap. 354) to enhance the regulatory effectiveness.

<sup>2</sup> The Food and Health Bureau and the Centre for Food Safety of FEHD proposed to regulate metallic contaminants (arsenic and lead) and harmful substances (erucic acid, aflatoxins and benzo[a]pyrene) in edible fats and oils. The public consultation was completed. The proposed regulation involves amending various subsidiary legislations under the Public Health and Municipal Services Ordinance (Cap. 132). We will implement the law amendment work gradually.

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3. The level of harmful substances and the quality of cooking oils may change during the course of cooking food. These changes are mainly due to the reactions between the frying oils and (i) the food; (ii) moisture and (iii) oxygen in the air. During frying, high temperature would result in thermal reaction of the frying oils and at the same time, the moisture in the food would be evaporated and released into the oils, resulting in hydrolysis. The oxygen in the air would also cause oxidation of the frying oils. Some food traders may cook food with the same cooking oils for more than once (so-called “reused oils” or “cooking oils in use”) and mix “reused oils” or “cooking oils in use” with other oils during cooking. Since there are diversified cooking methods among the catering industry, the trade would like the Government to provide some guidelines and suggestions on the use of “reused oils”, with specific recommendations having regard to the circumstances of the industry (e.g. the maximum number of times the oils could be reused before they had to be disposed of), for their reference and adoption.

4. Since the number of times that oils could be reused depend on multiple factors, including the oil type, cooking temperature, cooking time, type and amount of food fried and storage condition, we consider that we have to take a careful and pragmatic approach to gain a better understanding of the general situation of using “reused oils” by different sectors in the local catering industry. We should also observe the actual operation of the local trade and make reference to international experience<sup>3</sup> so as to formulate feasible guidelines on good practice of using frying oils. In this connection, the Centre for Food Safety (CFS) of the Food and Environmental Hygiene Department (FEHD) commissioned the PolyU Technology and Consultancy Company Limited (“Study Consultant”) to conduct a study on “cooking oils in use” and formulate guidelines on good practice of using frying oils.

### **Scope of the Study**

5. There is a wide range of fried food. This study will focus on assessing the level of harmful substances and the changes in quality of

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<sup>3</sup> Other countries / places have also provided guidelines on good practice of using edible oils for the trade.

cooking oils after repeated uses for frying seafood and vegetables<sup>4</sup> as well as provide a set of guidelines on good practice of frying seafood and vegetables for local food premises.

6. We will examine the findings of the study and their applicability on other fried food so as to determine whether there is a need to conduct further studies on other fried food.

## **Study Methodologies**

7. The study will be conducted in five stages. In the first stage, the Study Consultant will conduct site visits and market surveys in selected food premises of different scales in Hong Kong to understand the customary use of cooking oils for frying seafood and vegetables (they will also study the customary use of cooking oils for frying other food if those food premises also serve other fried food). The Study Consultant will also communicate with the trade to discuss the problems and difficulties faced by the industry when using cooking oils as well as their expectations on the content and recommendations of the guidelines.

8. In the second stage, the Study Consultant will take reference from relevant guidelines developed by different countries and places and identify the best practice taking into account the local situation for preparing the first draft of the guidelines. This may include any feasible quick test methods and concise ways of assessing the safety and quality of cooking oils etc.

9. In the third stage, the Study Consultant will conduct frying seafood and vegetable experiments based on the information obtained from the market surveys and the views expressed by the trade. Laboratory analysis would include arsenic, lead, benzo[a]pyrene, aflatoxins, erucic acid, acid value and total polar compounds, etc. The purpose is to evaluate the changes of different safety and quality parameters of cooking oils during frying so as to make the draft guidelines more specific.

10. In the fourth stage, with the experimental results available, the Study Consultant will consult the trade and invite the trade to try out the recommendations proposed to be included in the guidelines so as to assess the operability of, and the trade's receptiveness to, those recommendations.

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<sup>4</sup> Some seafood and vegetables may have higher level of arsenic and lead respectively. Therefore, the release of those metals from those foods into cooking oils during frying may have higher concern.

11. In the final stage, the Study Consultant will submit the final draft of the guidelines on good practice of using frying oils to CFS. They will also assist the publication of the guidelines for the local trade's reference and adoption.

12. This 20-month study was launched in September 2017 and is expected to be completed in mid-2019, with guidelines published.

### **Follow-up Work after the Publication of the Guidelines**

13. FEHD will encourage and assist the trade in adopting the guidelines. This includes providing support to the trade in staff training, publicity, education and internal quality control in a collaborative manner with relevant stakeholders. Following the publication of the guidelines, FEHD will step up its observation of the customary use of frying oils in food premises and keep in view the adoption and implementation of the guidelines by the trade.

### **Advice Sought**

14. Members are invited to note the content of this paper.

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Food and Environmental Hygiene Department  
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