



**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals****Sub-Committee of Experts on the Transport of Dangerous Goods****Fifty-seventh session**

Geneva, 30 November-8 December 2020

Item 6 (e) of the provisional agenda

**Miscellaneous proposals for amendments to the Model Regulations
on the Transport of Dangerous Goods:
other miscellaneous proposals****Proposal of experimental approach to provide data in
support of amendments concerning the text regarding fish
meal (Fish scrap, stabilized, UN 2216, Class 9)****Transmitted by the International Fishmeal and Fish Oil Organization
(IFFO)*****Purpose**

1. The purpose of this document is to seek the opinion on the proposed fish meal stability test that would provide sufficient data and evidence to demonstrate the safe use of alternative antioxidants and/or blends and adjusted concentrations to stabilize fish meal. Ultimately, the aim is to provide additional text for proposals to amend the IMDG (International Maritime Dangerous Goods) code and the IMSBC (International Maritime Solid Bulk Cargoes) code on options available for fishmeal stabilization prior to transportation.

Introduction

2. This is the next stage of a continuing programme of work (initiated in 2015) that provides more options for the fishmeal industry for stabilization of fishmeal products in transport. This is required due to the advent of restrictions on the use of ethoxyquin, and possibly, butylated hydroxytoluene (BHT) (currently under assessment), as antioxidants used in the stabilization of fishmeal, pending decisions on their authorization as feed additives in European legislation.

3. There are strict rules on the safe shipping transport of fishmeal that have been put in place by the Sub-Committee in the UN Model Regulations and the International Maritime Organisation (IMO) as seen in the IMSBC and IMDG codes.

* 2020 (A/74/6 (Sect.20) and Supplementary, Subprogramme 2.)



4. IFFO was a participant in the forty-eighth, forty-ninth and fiftieth sessions of the Sub-Committee, and has provided documentation in support of proposals for amendments to the Model Regulations, ultimately successful and listed in Annex I of the Committee's report ST/SG/AC.10/44/Add.1 of the eighth session.

5. The experimental work to provide the data in support of the earlier amendments is both challenging to manage, and costly. IFFO seeks feedback on a refined version of that approach that would still provide appropriate data on antioxidant-stabilized fishmeal relevant to commercial conditions of transport. IFFO envisages that this will be an iterative process with the possibility of further proposed amendments in future years, so the Sub-Committee's views on the approach are welcomed in ensuring that the trials work provides the most meaningful data for review.

Proposal for experimental work

6. The methodology relates to the use of tocopherols as an antioxidant in fishmeal stabilization. Text proposed for tocopherol-based antioxidant was adopted and included in the amended text (see document ST/SG/AC.10/44/Add.1) for fishmeal/fish scrap in the Model Regulations at 250 ppm (mg/kg) at the time of shipping. This work sets out to examine the possibility that effective stabilisation may be achieved with a reduced concentration below 250 ppm residual antioxidant concentration at the time of shipping. However, the evaluation of this paper concerns the proposed methodology rather than the specific antioxidant.

7. The work will be carried out with the support of IFFO members, fishmeal producers in Peru, who are also members of the national fisheries association (Sociedad Nacional de Pesquería).

8. The fishmeal produced for the study will be manufactured according to standard processes from Peruvian anchovy (*Engraulis ringens*). Peruvian anchovy meals are regarded as representative of the industry, generally forming the majority of the volume of annually trade fishmeal (around 15-20 % of total) as well as having higher polyunsaturated fatty acid levels reflecting the more reactive fishmeal that are found globally (thereby possessing higher risk of oxidation).

9. The same batch of fishmeal will be used for the samples. Treatments will be handled and stored under similar conditions that fishmeal is normally handled in the factory.

10. For each treatment under investigation, replicates of two one tonne bags, and ten 50 kg sacks will be provided.

11. Samples and parameter analysis will be run according to the schedule presented in the table below:

Treatment	Day 0	Day 15	Month 1	Month 2	Month 6	Month 12
Tocopherol	Proximate analysis, A/O, FFA, Ω-3, °C-FM, °C-A, AV	A/O, C-FM, °C-A		A/O, °C-FM, °C-A	A/O, FFA, °C-FM, °C-A, SHT, AV	Proximate analysis, A/O, Ω-3, C-FM, °C-A, SHT, AV

A/O: Antioxidant (Tocopherol) residue

FFA: Free Fatty Acids

Ω-3: Long chain Omega-3 concentration (EPA and DHA)

°C-FM: Fishmeal temperature

°C-A: Ambient temperature

AV: Anisidine value

12. Treatment doses will be undertaken to provide comparative data at different inclusion levels, calculated to provide information on effective residual concentrations of antioxidant at 12 months of sampling that would be representative of commercial conditions of storage and shipping.

13. Samples, when they are taken, will be pooled according to treatment dose and container size, and analysed accordingly. Treatments, i.e. antioxidant concentrations, will be maintained separately.
