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**International Fish Meal
and Fish Oil Organisation**

**MEETING FORTHCOMING EU
LIMITS ON PCBs IN FISH OIL
AND FISH MEAL**

by

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The EU is expected to announce shortly their proposed limit on dioxin-like PCBs in fish oil and fish meal, to be introduced next year. Indications from Brussels (Dr. Frans Verstraete) are that the limit is likely to be set at 12pg/g for fish oil and 2.5pg/g for fish meal on a 12% moisture basis. This represents double the current dioxin plus furan limits. Will this be enforced individually or as a combined dioxin + PCB limit? So far we do not know. Will this limit be exceeded by many products?

We have been fortunate in obtaining extensive analytical data on these contaminants from ERGO in Germany. Part of this was given at IFFO 2003 Annual Conference in New Orleans (see Conference CD – Technical Committee I). A condition of receiving this information is that no information about the origin of the samples could be given, to protect ERGO's customers who provided the samples. However, we know a high proportion of the samples are from Europe.

Fish Oil

Only five fish oil samples exceeded the limit plus analytical tolerance (6 + 1.5) pg/g for dioxin and furans (Figure 1). Taking an indicated dioxin plus PCB limit of 18pg/g and a +20% analytical tolerance, only four samples exceeded this limit of 21.5pg/g (Figure 2).

Calculating the ratio of PCBs to dioxin plus furans for each sample, over two-thirds were 2:1 or lower (Figure 3). Many of those exceeding this limit were fish oils with a relatively low dioxin content (less than 1pg/g), possibly because they have been processed to remove dioxin but not PCBs.

Fish Meal

Only four samples of fish meal exceeded the dioxin limit (Figure 4). Five samples exceeded the indicated dioxin plus PCB limit of (1.25pg+2.5pg) plus a tolerance of 0.75=4.5pg/g (Figure 5).

The ratio of PCB:dioxins plus furans, whilst approximately two-thirds were 2:1 or below, one-third were higher (Figure 6). Again most of the higher ratios were for fish meals with relatively low dioxin content.

Fish Feeds

Virtually all the fish feeds were within the dioxin limit of 2.25pg/g (Figure 7). Two exceeded the indicated dioxin plus PCB limit of 6.75pg/g + a tolerance of 1.25pg=7.5pg (Figure 8). Half the samples had a PCB:dioxin plus furan ratio over 2:1 (Figure 9).

Conclusions

Relatively few of the fish oils tested exceeded the limits for dioxin and proposed for PCBs. But this assumes the limits for each are combined. If they are not, it may be more difficult meeting a separate PCB limit. In a few cases (possibly 2% to 3%) it may be necessary to remove some PCB as well as dioxin.

Of the fish meals, around 10% would need processing to meet the new limits, assuming they are combined.

The new limits for fish feeds will probably be met for both dioxin and PCB once the limits for fish oil and fish meal are applied.

Figure 1

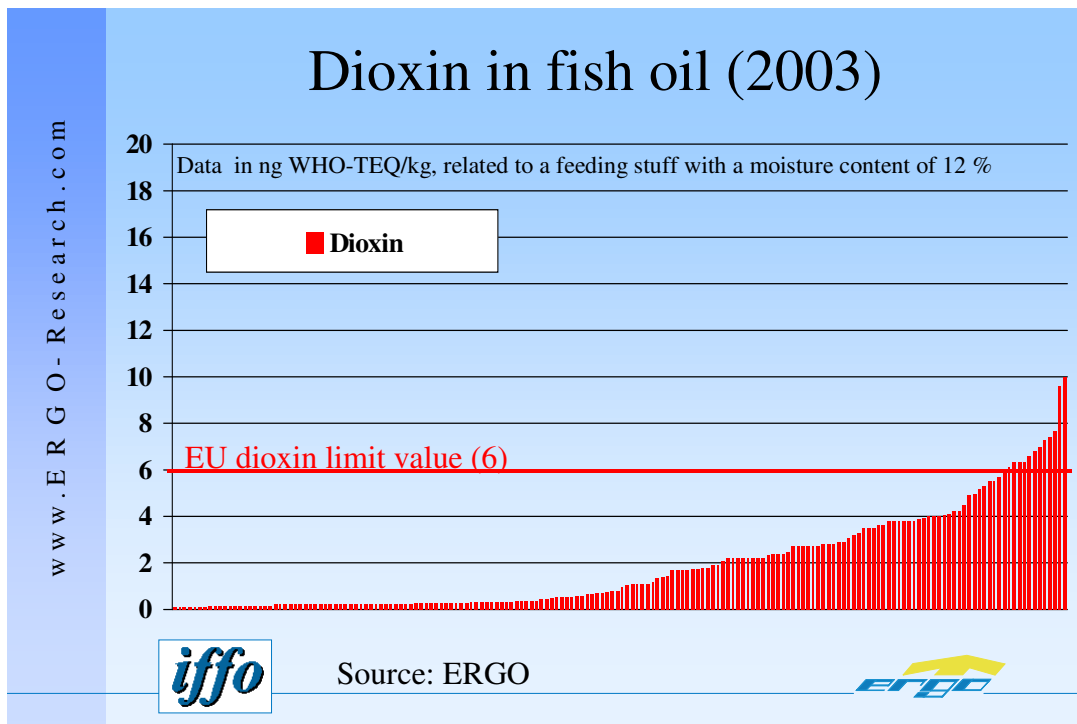


Figure 2

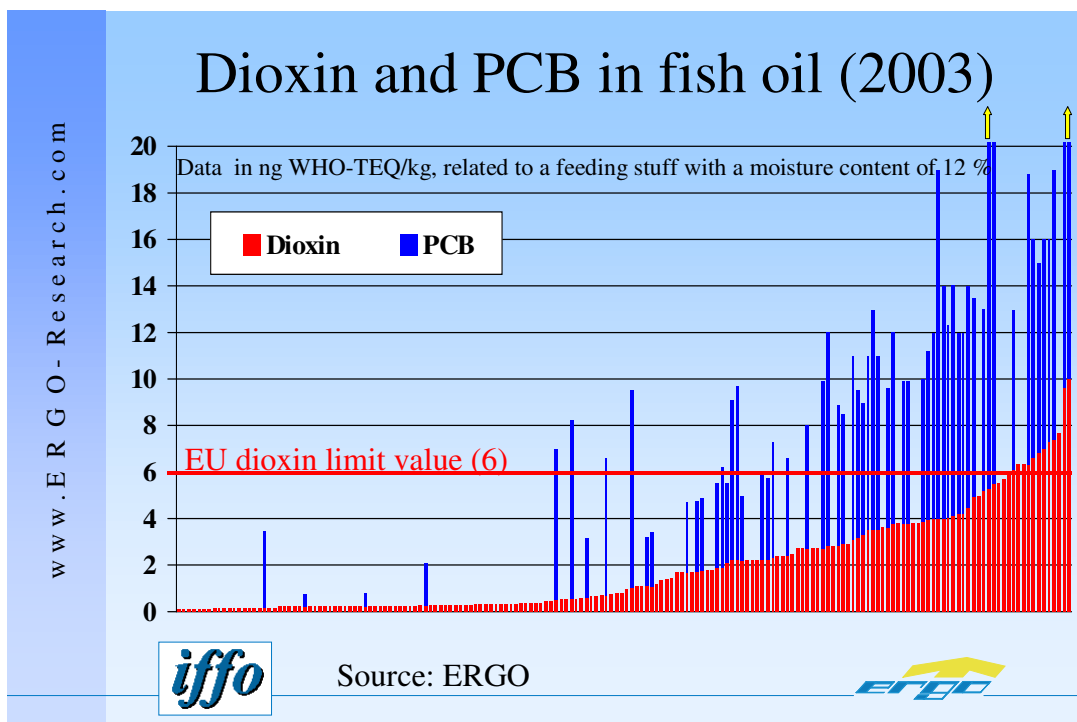


Figure 3

**Ratio of TEQ of WHO-PCBs
("dioxin-like PCBs", 12 compounds) to PCDDs/PCDFs in fish oil
- sorted by increasing PCDD/PCDF-TEQ -**

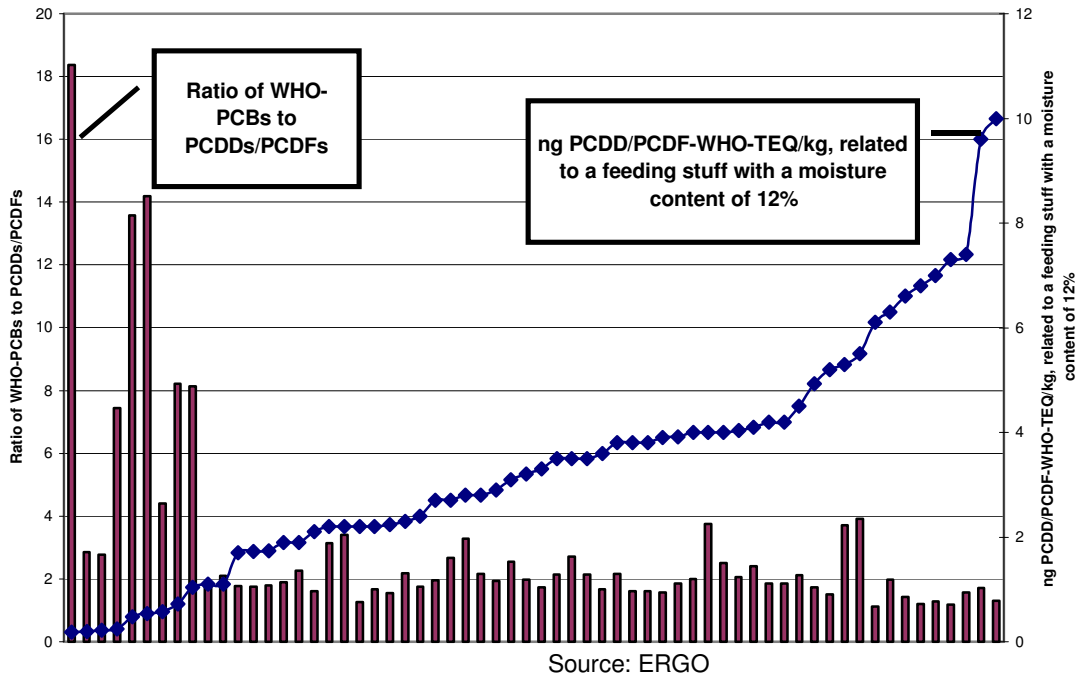


Figure 4

Dioxin in fish meal (2002-2003)

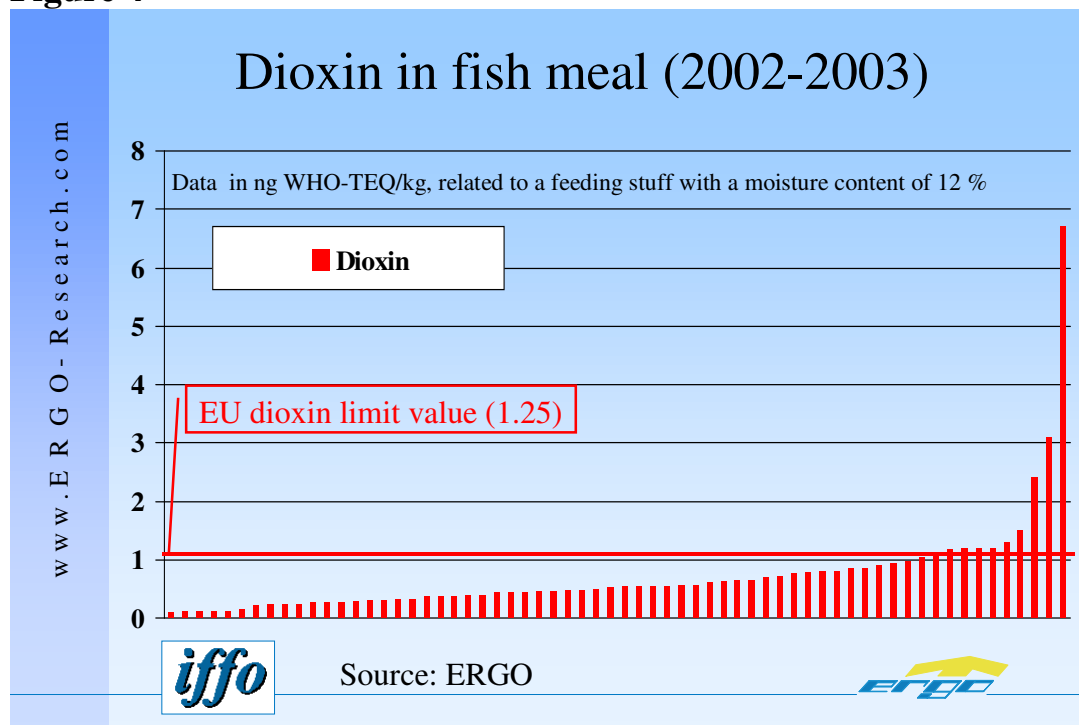


Figure 5

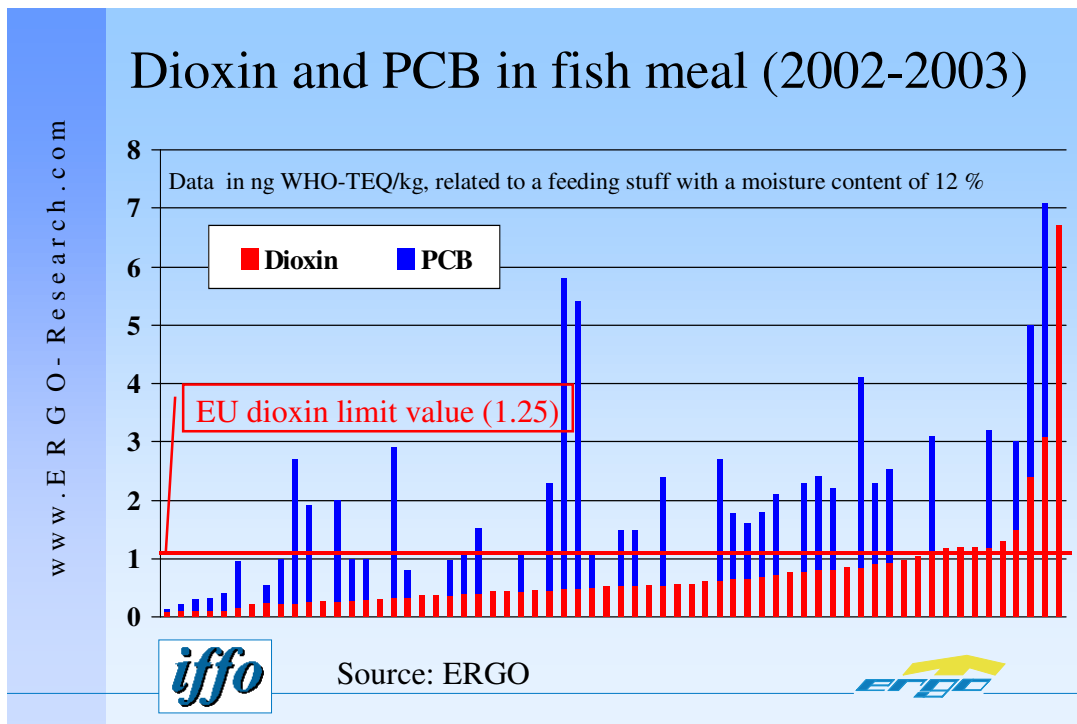


Figure 6

**Ratio of TEQ of WHO-PCBs
("dioxin-like PCBs", 12 compounds) to PCDDs/PCDFs in fish
meal
- sorted by increasing PCDD/PCDF-TEQ -**

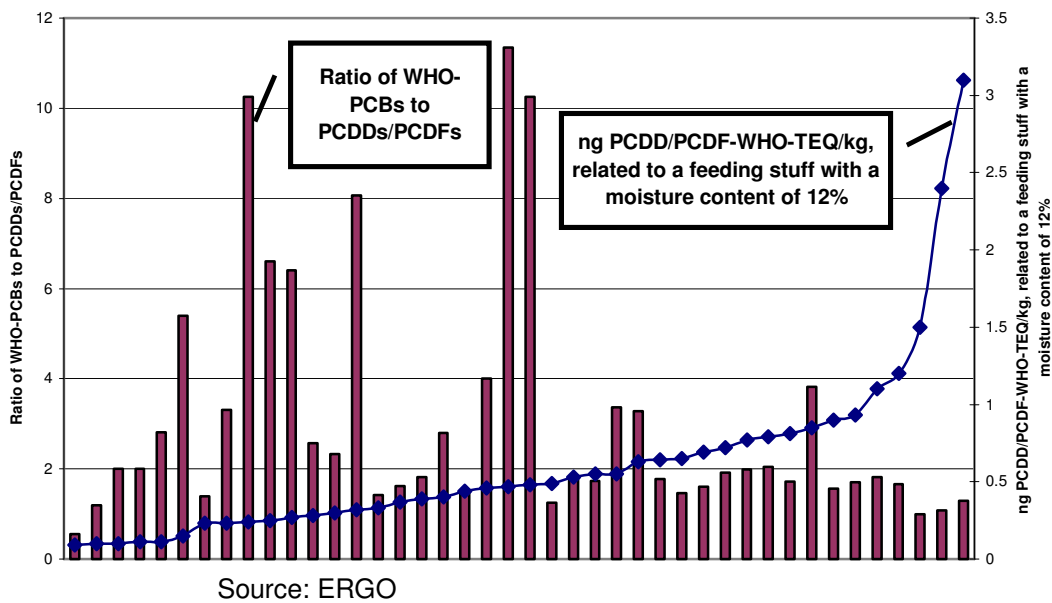


Figure 7

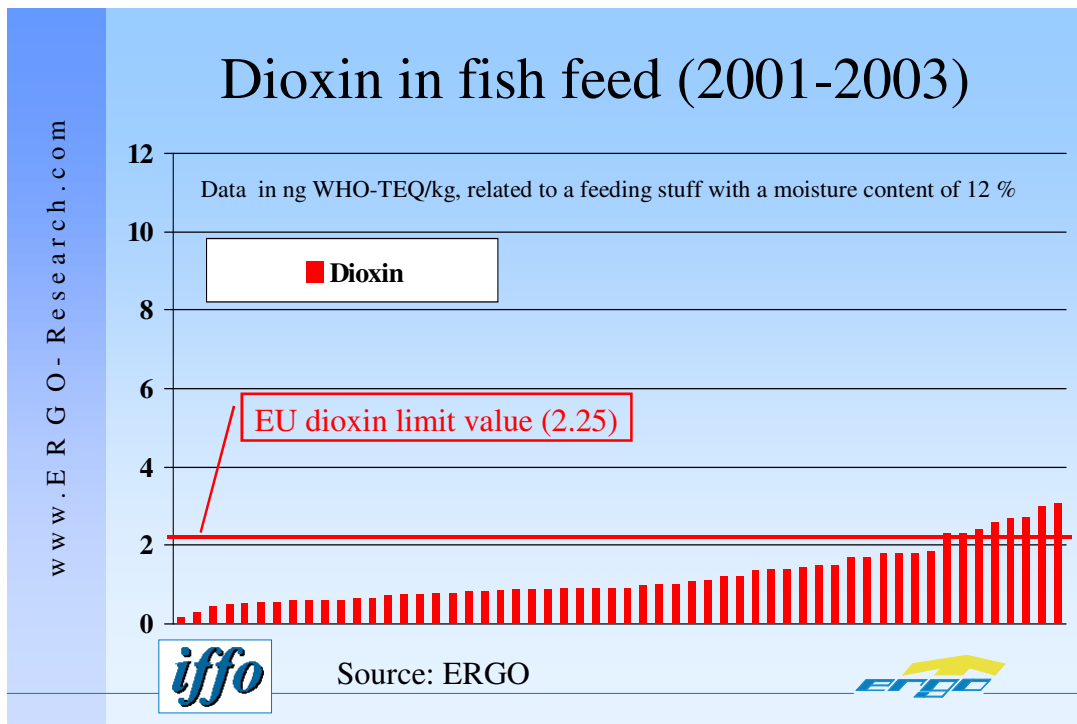


Figure 8

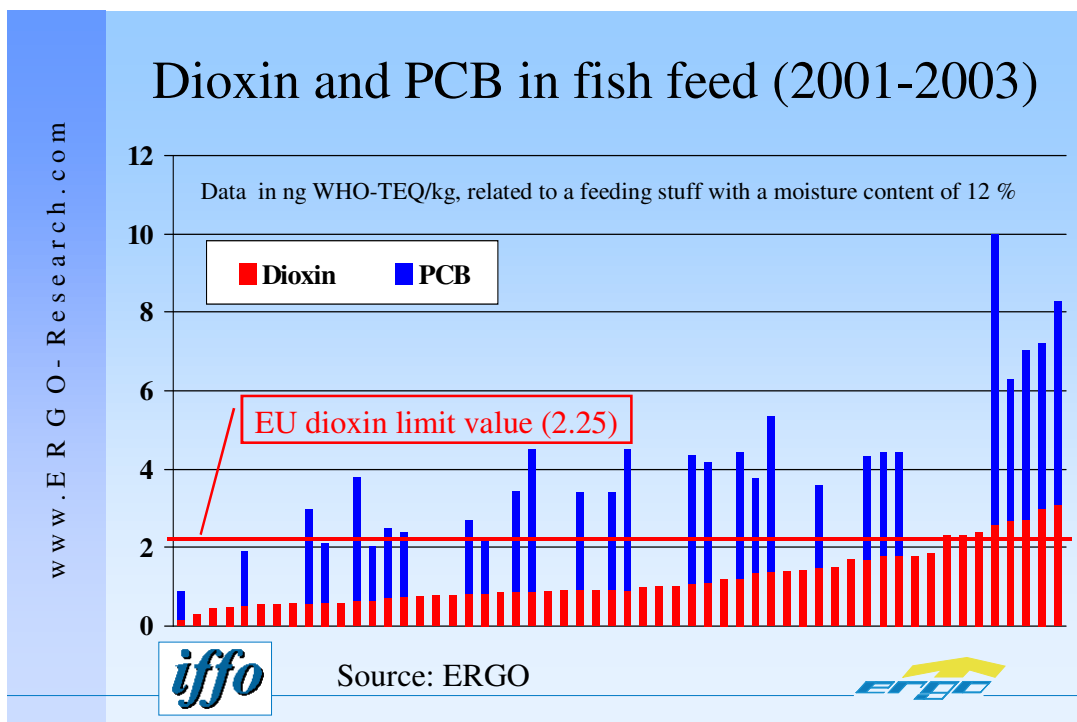


Figure 9

**Ratio of TEQ of WHO-PCBs
("dioxin-like PCBs", 12 compounds) to PCDDs/PCDFs in fish feed
- sorted by increasing PCDD/PCDF-TEQ -**

