

PIRIMIPHOS-METHYL (086)

EXPLANATION

Pirimiphos-methyl was first evaluated by the 1974 JMPR. An MRL for peanut oil of 10 mg/kg was recommended by the 1976 JMPR and amended to 15 mg/kg by the 1985 Meeting. Because the 1988 CCPR understood the 1985 recommendation as applying to crude oil, it advanced that proposal to Step 8 and proposed a separate limit at the same level for edible peanut oil at Step 3. The 1990 CCPR lowered the draft MRL of 15 mg/kg for edible oil to 10 mg/kg and requested information on practices in African countries where post-harvest use on peanuts is permitted. The Meeting received information on African and Australian GAP.

USE PATTERN

The information on approved use patterns on stored is peanuts is summarized in Table 1.

Table 1. Approved uses of pirimiphos-methyl on stored peanuts.

Country	Form	Application	
		Method	Rate, g ai/t
Ghana	DP	sprinkling	10
	EC	spray	10
Mozambique	DP	sprinkling	10
Nigeria	DP	sprinkling	10
	EC	spray	4-10
Cameroon	EC	spray	4-10
Gabon	EC	spray	4-10
Guinea	EC	spray	4-10
Australia	Solvent-free liquid	spray	20

FATE OF RESIDUES IN PROCESSING

Supervised trials and processing studies were carried out in the USA from 1971 to 1975 and the data were submitted to the 1985 Meeting. Residues in various fractions obtained during processing the crude peanut oil are shown in Table 2.

The outline of the process is as follows. The peanuts are treated with 20 g ai/t of pirimiphos-methyl and stored for 6 months under commercial warehouse conditions, then agitated to remove the stems, vine remnants and other foreign matter. The whole peanuts are cracked and separated into hulls and kernels, and the kernels in turn cracked, chopped and heated with steam to facilitate the extraction of oil. The oil is then mechanically extracted by pressing the kernels, and the crude oil is decolorized and deodorized to yield edible oil.

Table 2. Pirimiphos-methyl residues in peanut oil (Ussary, 1978).

Batch No.	Pirimiphos-methyl concentration (mg/kg)			
	Crude oil	Once refined	Bleached	Finished oil
111-1	14.1	13.4	14.0	10.4
111-2		14.0	13.3	10.8
111-3		12.7	14.1	10.3
112-1	12.0	12.0	10.5	-
112-2		12.4	-	-
112-3		12.6	9.6	5.4
113-1	13.5	13.2	-	-
113-2		14.0	-	-
113-3		13.4	-	-
124-1	14.6	18.7	17.9	9.0
124-2		16.1	14.0	10.6
124-3		17.2	14.1	9.6
125-1	14.9	17.1	15.0	-

APPRAISAL

Pirimiphos-methyl was first evaluated by the 1974 JMPR. An MRL for peanut oil was first recommended at 10 mg/kg by the 1976 Meeting and amended to 15 mg/kg in 1985. Because the 1988 CCPR regarded the 1976 JMPR estimate as applying to crude oil, it advanced that proposal to Step 8 and proposed a separate limit at the same level for edible peanut oil at Step 3. The 1990 CCPR amended the 15 mg/kg limit for edible peanut oil to 10 mg/kg and requested information on practices in African countries where post-harvest use is permitted on peanuts. The Meeting received information on GAP from African countries and Australia.

Peanut oil, edible. The mean concentration of pirimiphos-methyl in edible peanut oil which had been refined from crude oil containing residues in the range 12-14.6 mg/kg was 9.4 mg/kg. However individual values occasionally exceeded the currently proposed MRL of 10 mg/kg.

There was no information from African countries or Australia on processing procedures to yield the refined peanut oil from stored peanuts, but the Meeting concluded that even if their processing differed from the procedure used in the available trials the residues of pirimiphos-methyl in the refined peanut oil would not differ significantly from those found in the trials, since pirimiphos-methyl seems to be stable to heat or other processing (as indicated in the 1985 evaluation) and is fat-soluble.

The Meeting considered the information on GAP in African countries and Australia and concluded that the application rates (4-20 g ai/t) were compatible with the rate used in the trials (20 g ai/t).

RECOMMENDATIONS

On the basis of the data on residues resulting from processing studies the Meeting concluded that the residue level shown below is suitable for use as an MRL.

Definition of the residue: pirimiphos-methyl (fat-soluble)

Commodity		Recommended MRL (mg/kg)	
CCN	Name	New	Previous
OR 0697	Peanut oil, edible	15 PoP	10 ¹ PoP

¹The 1985 JMPR recommendation was 15 mg/kg, lowered to 10 mg/kg by the 1990 CCPR

REFERENCES

Ussary, J.P. 1978. Pirimiphos-methyl residues on peanut fractions from a commercial oil processing and refining plant. Report from ICI Americas Inc., Agricultural Chemicals Division Research and Development Department.