



TNO Report

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Subject: The determination of softening agents in two samples Scoubidou-look-a-likes

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1. Introduction

Greenpeace Netherlands requested TNO to determine the presence of softening agents in two samples Scoubidou look-a-likes.

2. Samples

Two samples of Scoubidou look-a-likes were received on 14th July 2004 in good order. The table below shows the sample code of TNO and a short description of the samples.

| TNO-sample code | Description |
|-----------------|---|
| 52004192-001 | Scoubidou look-a-like from market |
| 52004192-002 | Knoopiedoen from Blokker ref. 8712916507017 |

3. Method

Proportional sub-samples were collected from both samples. Both sub-samples were cut into small pieces and 2 gram of this shredded material is used for the chemical analysis.

The samples were soxhlet extracted overnight with dichloromethane. The extract was concentrated and brought to a final volume of 50 ml with dichloromethane. This extract was analysed directly for a screening with gas chromatography coupled with mass spectrometry (GC/MS).

After the determination of the specific softening agents, a quantitative analysis on these specific softening agents was performed.

4. Results

With the screening analysis of the two samples the presence of phthalates was determined. The results for phthalates are presented in the table below.

| sample code TNO 52004192- compound | 001 in mg/kg | 002 in mg/kg |
|---|-----------------|-----------------|
| dimethyl phthalate (DMP) | < 0.1 | < 0.1 |
| diethyl phthalate (DEP) | 470 | 360 |
| diisobutyl phthalate (DIBP) | 16000 | 3000 |
| dibutyl phthalate (DBP) | 150 | 51000 |
| butylbenzyl phthalate (BBP) | < 0.1 | < 0.1 |
| dicyclohexyl phthalate (DCHP) | < 0.1 | < 0.1 |
| bis (2-n-ethylhexyl) phthalate (DEHP) | 140000 | 75000 |
| di-n-octylphthalate (DOP) | < 0.1 | < 0.1 |
| diisononylphthalate (sum of isomeres) (DINP) | 46000 | 1300 |
| diisodecyl phthalate (sum of isomeres) (DIDP) | < 0.1 | < 0.1 |

5. Conclusions

The study showed that mainly phthalates are present as softening agents in both samples. Sample 52004192-001 contains a total of about 20 %^(w/w) and sample 52004192-002 a total of about 13 %^(w/w) of phthalates.



6. Quality assurance

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