

26.10.2021

**The Gas Chromatography/Mass Spectrometry (GC/MS) Analyze Report of tri(2-ethylhexyl) trimellitate (TOTM)**

The tri(2-Ethylhexyl) trimellitate (TOTM) sample sent by LEBA SANAYİ URUNLERI İTH İHR PAZ AS was firstly extracted with GC grade high purity hexane. Then, it was analyzed with an Agilent 6890N gas chromatograph (GC) equipped with a mass selective detector (Agilent 5975 inert MSD) working at electron impact ionization mode. A capillary column (HP-5ms, 30 m, 0.25 mm, 0.25  $\mu\text{m}$ ) was used. The carrier gas (helium) was used at constant flow mode ( $1.8 \text{ mL min}^{-1}$ ) with a linear velocity of  $49 \text{ cm s}^{-1}$ . The initial oven temperature was held at  $40^\circ\text{C}$ , raised to  $180^\circ\text{C}$  at  $12^\circ\text{C min}^{-1}$ , then raised to  $320$  at  $7^\circ\text{C min}^{-1}$ , and held for 5 min. Total run time was 39.57 min. and the injection volume was  $1.0 \mu\text{l}$ . The injector, ion source and quadrupole temperatures were 280, 230 and  $150^\circ\text{C}$ , respectively. The results of GC/MS were presented in Figure 1 and Table 1.

**Table 1. GC/MS Library Search Report**

Search Libraries: C:\Database\NIST14.L

Pk#	RT	Area%	Library/ID	Ref#	CAS#
1	20.738	0.57	Hexanedioic acid, bis(2-ethylhexyl) ester	725748	000103-23-1
2	23.787	0.35	1,3-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	233539	000137-89-3
3	24.417	0.34	1,4-Benzenedicarboxylic acid, 1,4 bis(2-ethylhexyl) ester	233541	006422-86-2
4	30.974	<b>98.74</b>	tri(2-Ethylhexyl) trimellitate	270631	003319-31-1

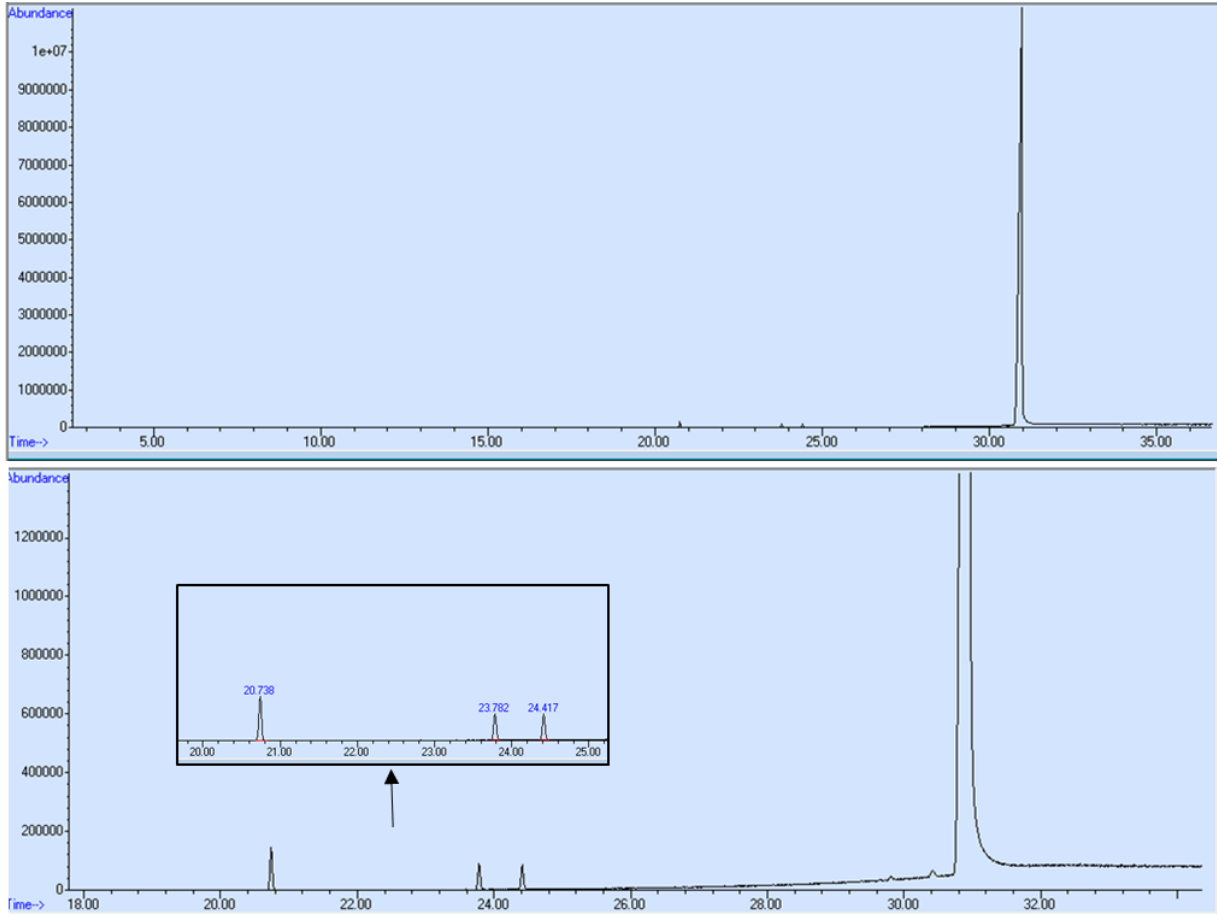


Figure 1. The chromatogram of TOTM sample obtained from GC/MS, actual and zoomed.

As can be seen from the figure, peak obtained at 30.974 minute is belong to TOTM. Only three peaks at 20.738, 23.787 and 24.417 minutes were obtained as impurity named Hexanedioic acid, bis(2-ethylhexyl) ester, 1,3-Benzenedicarboxylic acid bis(2-ethylhexyl) ester and 1,4-Benzenedicarboxylic acid bis(2-ethylhexyl) ester; respectively. After excluding impurities, purity of TOTM sample was found as 98.52 %.

“LEBA SANAYI URUNLERI ITH IHR PAZ AS” TOTM Quantity is around 99 %

**Responsible of Analysis**

**Prof. Banu Çetin**