MICROGRAM

BUREAU OF NARCOTICS AND DANGEROUS DRUGS / U.S. DEPARTMENT OF JUSTICE

Vol.I,No.11 | Office of Science and Education, Division of Laboratory Operations | November 1968

INSTITUTE ON POLICE LABORATORY OPERATIONS

An Institute on Police Laboratory Operations was held September 16-18, 1968 at Pennsylvania State University, sponsored by the University's College of Human Development. Co-sponsors were the International Association of Chiefs of Police, Pennsylvania Chiefs of Police Association, Pennsylvania State Police, National Association of Police Laboratories, and the Suffolk County Police Department. Doctor Henry L. Guttenplan, Professor, Law Enforcement and Corrections, Pennsylvania State University was director.

Objectives were:

1. To provide a forum for the interchange of ideas and information relating to the most effective use of scientific technqiues in the investigation of crime.

2. To identify administrative and legal problems confronting laboratory administrators and scientist-experts; and to formulate guidelines for resolving the problems.

3. To evaluate recommendations of the President's Commission on Law Enforcement and Administration of Justice relating to police laboratories and scientific services, and to develop guidelines relating to facilities, staffing, equipment and services compatible with the Commission's recommendations.

The Institute was attended by approximately forty administrators of federal, state, county and city forensic laboratories; police executives; and university personnel.

Panels, consisting of laboratory personnel, discussed laboratory organization, personnel practices, services rendered, and the practices followed in each panelist's laboratory. Workshops were held in which conferees discussed administration, personnel, training and research areas for the forensic science laboratories.

Among the recommendations made at the Institute were:

1. That a second conference was needed, and that an effort should be made to attract a larger cross-section of the nation's forensic scientists to that conference to be held in October, 1969.

2. That Doctor Guttenplan should write an article about the Institute and the recommendations made by the conferees.

ONE LABORATORY'S WORKLOAD

An interesting letter from Mr. Louis E. Bornstein, Senior Analyst, Drug Control Section of the Massachusetts Division of Food and Drug, shows the great variety of preparations a large laboratory can be expected to analyze. The list covers eight pages of dozens of different preparations.

We wish we could print the list, but here is a broad breakdown of the material submitted by local police departments only, for Fiscal Year 1967 - 1968:

Green herbs	4535
Brown material	94
Powder	2004
Gum	5
Candy	11
Sugar Cubes	28
Crystals	9
Cookies	1
Crackers	1
Beans	1
Residue	2173
Wax material	1
Liquid	317
Capsules	852
Tablets	1211

LSD was found in or on green herbs, powder, gum, candy, sugar cubes, cookies, crackers, beans, residue, liquid, capsules, and tablets.

TALWIN (Winthrop)

Pentazocine (Talwin), is marketed as an analgesic. It has had publicity as a non-addicting drug, but no longer does the manufacturer

make this claim.

There are reports that Talwin is being abused, and that it may be addicting.

We would appreciate reports on any instances of abuse, injuries or addiction coming to your attention.

REF: U.S. Dispensatory, 26th Ed., p. 89
Merck Index, 8th Ed., p. 794

ULTRAVIOLET SPECTROPHOTOMETRY

Mr. Lowell W. Bradford, Director, Laboratory of Criminalistics, County of Santa Clara, 875 N. San Pedro Street, San Jose, California, has sent us a reprint: "Studies of Drugs, Narcotics and Poisons with Far Ultraviolet Spectrophotometry." This paper was presented in August 1966 at the Fourth International Meeting in Forensic Medicine, Copenhagen, Denmark.

In a letter, Mr. Bradford commented on Andres and Snow's article about UV spectra which appeared in Micro-Gram, Vol. I., No. 10. He recommends that analysts using alkaline pHs for UV spectra be aware of certain limitations involving the cutoff point.

In the reprint sent with his letter, Mr. Bradford states:

> "Basic solutions constitute a severe impediment. The effect appears to result from OH concentration more or less independent of positive ion. pH 9.4 to pH 10 appears to be the most basic pH range which is acceptable."

Using a Beckman Far Ultraviolet DK-2 Spectrophotometer, Mr. Bradford gives the following 50%T cutoff points:

Solvent	1.0 cm cellpath	0.01 cm cellpath
0.45 N NaOH	225 mu	
0.2 N NaOH	223	207 mu
pH 12	216	188
pH 11	210	186
pH 10	205	184
pH 9.4	200	183

These values will vary from instrument to instrument, but it is well to remember this limitation in using alkaline solutions.

MARIHUANA

We were sent a newspaper clipping, which reports a university researcher stating that a North African form of marihuana, known as "kif," is showing up in this country and is addictive. He is alleged to have also said that the most common form of marihuana found in the United States is "bhang", grown in Mexico, but not considered addictive.

As far as we know, "kif" is still just another name for marihuana, and "bhang" is not confined to Mexico. The Internal Revenue Service's Methods of Analysis states "... Hashish (Purified alcoholic extract of Cannabis sativa); Ganja (Dried flowering tops of cultivated female plants): Bhang Dried flowering tops of uncultivated female plants; Charas (pure resin from cultivated female plants)..."

MARIHUANA EXTRACT

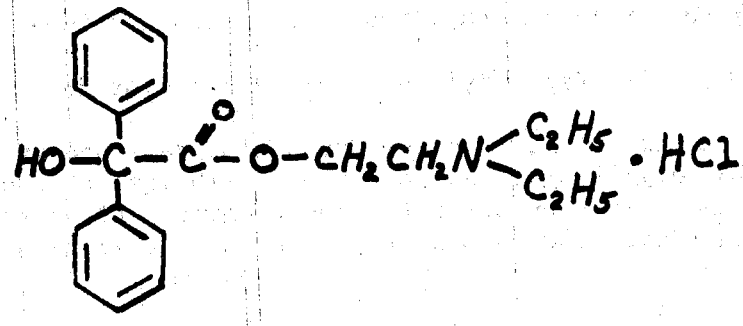
A letter from Lucien C. Haag, Criminalist in the Phoenix, Arizona, Police Crime Laboratory, to Richard Ruybal, U.S. Food and Drug Administration, is attached. Mr. Ruybal sent us a copy of Mr. Haag's letter and IR scans, along with IR spectra run by one of FDA's chemists. The spectra from both laboratories are attached.

October 16, 1968

IDENTIFICATION OF "DMZ" AS BENACTYZINE HYDROCHLORIDE

Paul DeZan
New York District
U.S. Food and Drug Administration

A BNDD sample was brought to the New York District laboratory for analysis, only identified as "DMZ". The product was a small, clear, transparent, hard gelatin capsule, filled with a white crystalline powder. Analysis of the capsule contents revealed the presence of Benactyzine Hydrochloride (β-Diethylaminoethyl benzilate hydrochloride).



$C_{20}H_{25}NO_3HCl$ Mol.wt.=363.41

BENACTYZINE HYDROCHLORIDE

Physical Properties:

Hydrochloride - white powder
Molecular Weight - 363.41
Melting Point - 178° - 179°C

Free Base - white crystalline material
Molecular Weight - 327.41
Melting Point - 51° (Merck Index)

The UV spectrum of Benactyzine Hydrochloride is identical to "LBJ" (N-Methyl-3-Piperidyl Benzilate Hydrochloride). Also, the same (blue) color reaction is obtained with the Marquis Reagent.

Because of these similarities, the product was analyzed according to the procedure for "LBJ", as described in Micro-Gram Vol. I, No. 10.

Specific identification of the compound is accomplished by infra-red spectrophotometry (as in Micro-Gram No. 10).

The compound was spotted on a thin layer plate, along with LBJ, and developed as described in LIB No. 742. The R_f values obtained for the developed spots were as follows:

COMPOUND	R_f VALUE
DMZ (β-Diethylaminoethyl benzilate hydrochloride)	0.55
LBJ (N-Methyl-3-Piperidyl Benzilate Hydrochloride)	0.52

The amount of Benactyzine Hydrochloride found in the capsule was approximately 22 mgs. At low doses (1-10 mgs) this drug is regarded as a tranquilizer proposed for the treatment of short term neuroses. At higher doses (40-70 mgs) the drug is a powerful hallucinogen.

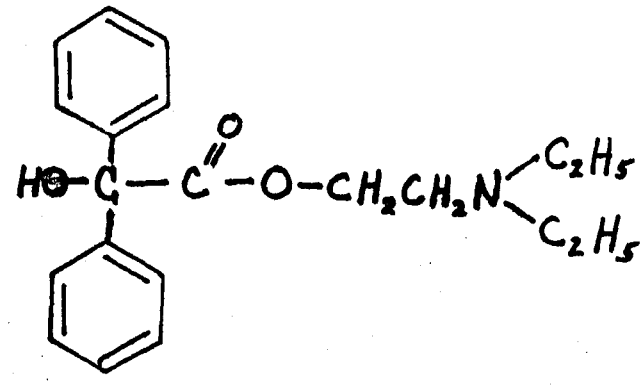
ACKNOWLEDGEMENT

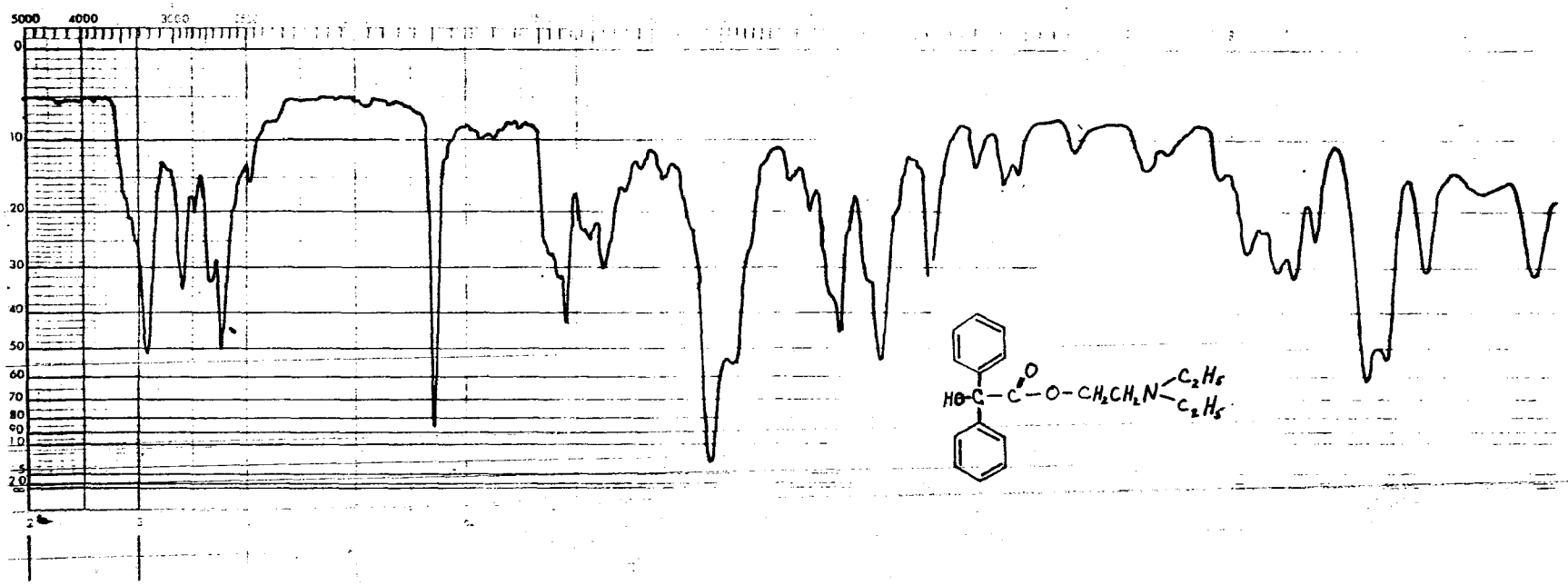
I wish to acknowledge, our mass spectroscopist, Mr. Sander W. Bellman, for his cooperation in identifying this compound.

Compound: BENACTYZINE HYDROCHLORIDE
Mol. Formula: $C_{20}H_{25}NO_3 \cdot HCl$
Mol. Weight: 363.41

UV Data:

UV Maxima - 257, 251, 261, 263 mu
Concentration - 37.6 mgs./100 mls 0.1N HCl
Abs.257 - .509 + .009 = .518
$E^{1\%}$ - 13.8

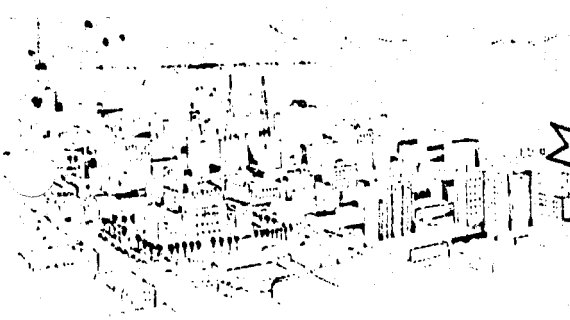




9-13-68
(STANDARD)
BENACTIZINE HYDRO

KBr
1 0.5%
SOLID
VS. AIR

Paul De Jon



CITY OF PHOENIX
ARIZONA

Phoenix, Arizona
July 25, 1968

Mr. Richard Ruybal
Food and Drug Administration
New Custom House Bldg.
Denver, Colorado

Dear Mr. Ruybal:

The enclosed ampules contain a purified extract of marijuana in benzene. Gas chromatography and T.L.C. show it to be mostly THC then CBN and some CBD.

This solution was prepared by extracting a portion of a brick of Mexican marijuana with hot methanol, evaporating to dryness with mild heat and air current, redissolving in benzene then filtering the benzene solution through Florisil to remove chlorophyll and other polar materials.

For successful thin layer chromatograms, we have found that the Eastman type K301R2 silica gel must first be activated at 110°C for approximately 1 hour then immediately impregnated with DMF (DMF-acetone 70:30) by means of a sprayer, allowed to dry in the open, the samples spotted then chromatographed with cyclohexane saturated with DMF. Characteristic colors are produced with THC,CBN and CBD upon spraying with tetrazotized o-dianisidine in .1N NaOH solution. (Ref. p. 38 U.N. Bulletin on Narcotics Vol. XVII No.1 1965)

Our G.C. column for marijuana is a 6 ft. stainless steel column made by Beckman Instruments of ¼" O.D. pa cked with Gas Chrom Q 60/80 mesh with 3% OV-17.

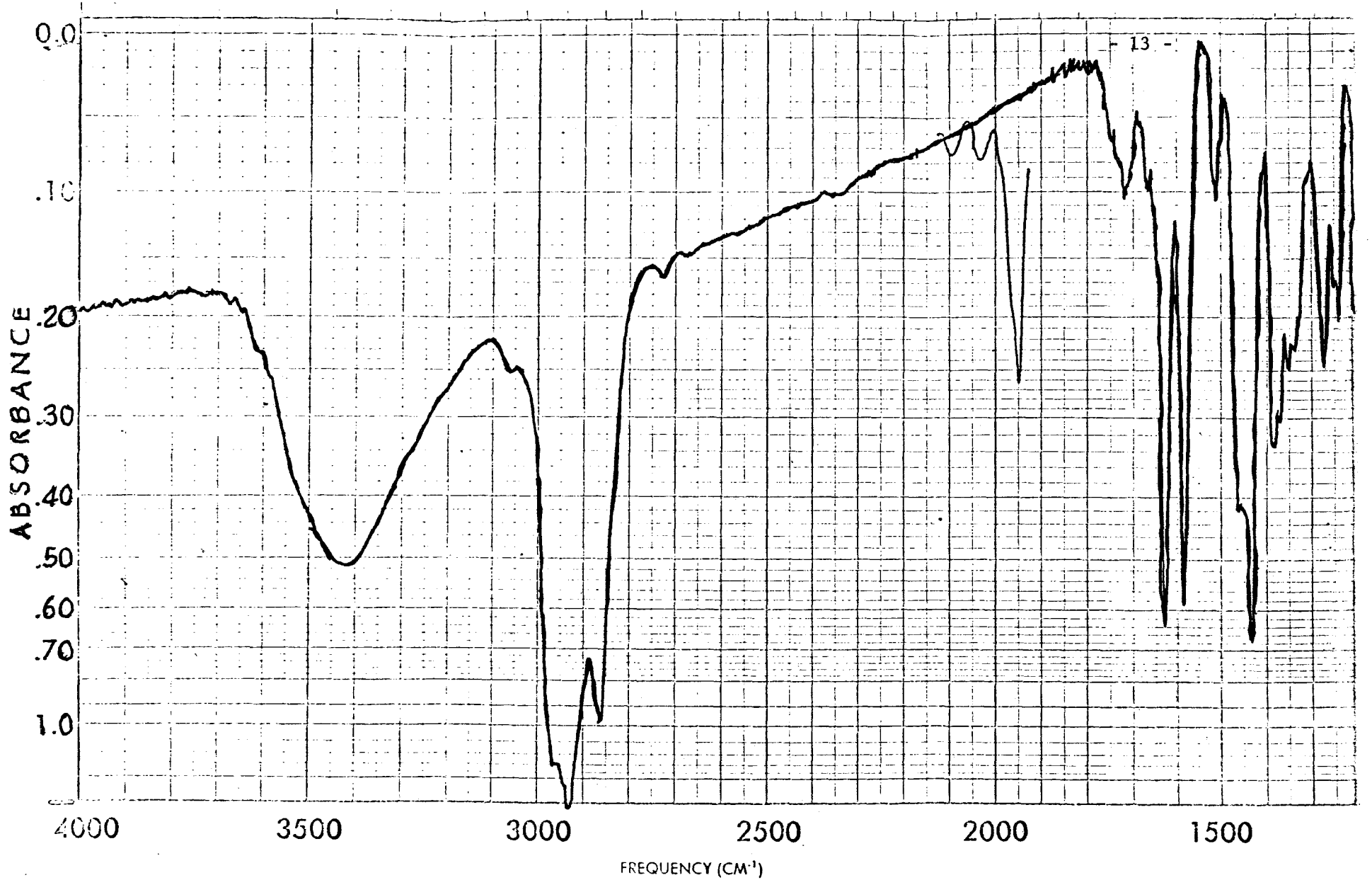
Also enclosed are two I.R. scans run by John Thornton, Criminalist at Contra Costa Co. Crime Laboratory in Ca lif. of Δ^1 and Δ^6 THC.

The material in our sample when run in a KBr disc had a spectrum comparable to his Δ^1 scan.

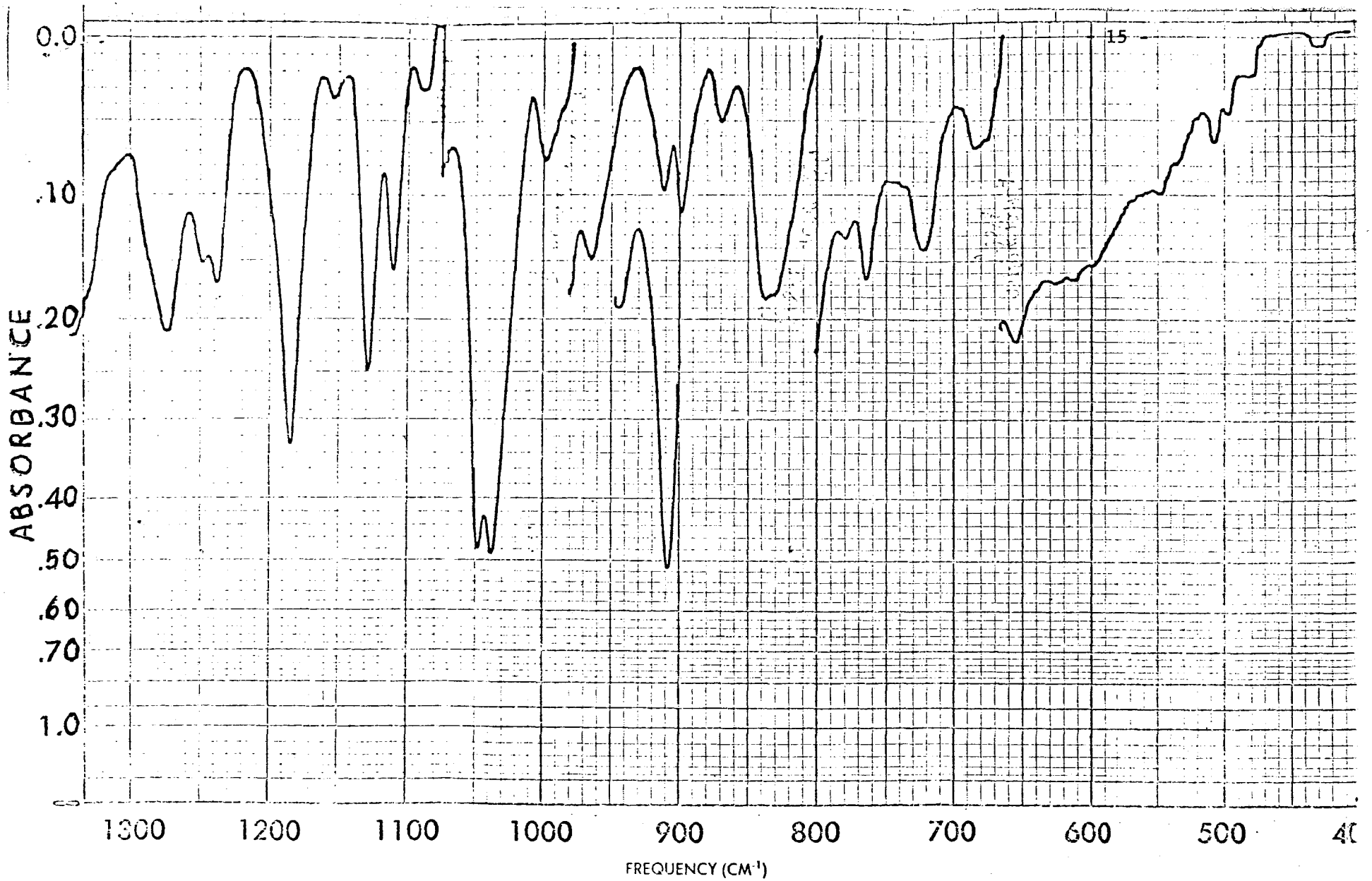
Final note: Our material was prepared almost a year ago and has been stored in the refrigerator. It was examined 4 months ago and still gave the same results.

Sincerely yours,

Lucien C. Haag, Criminalist
Phoenix Police Crime Laboratory
12 N. Fourth Ave.
Phoenix, Arizona



SAMPLE Marijuana Extract Mexican Brick	CURVE NO.	SCAN SPEED S	OPERATOR SBJ
ORIGIN City of Phoenix Crime Lab	CONC. 0.7ml/200mg	SLIT 7	DATE 4-7-68
SOLVENT KBr	CELL PATH	REMARKS Evap from benzene Δ' THC	
	REFERENCE Attenuated Air		



SAMPLE Marijuana Extract
Mexican Brick
ORIGIN City of Phoenix Crime Lab
SOLVENT KBr

CURVE NO.
CONC. 0.7 mg/200mg
CELL PATH
REFERENCE Atm Ted-Air

SCAN SPEED 5
SLIT 7

OPERATOR [illegible]
DATE 8-2-68
REMARKS