Huntingdon

File Yakima Co. Kellogg's Korner

Huntingdon Engineering & Environmental, Inc.
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October 7, 1994

RECEIVED
OCT - 8 1994
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

Mr. Niels Brown
c/o Hart and Winfree
P.O. Box 210
Sunnyside, Washington 98944-0210

Subject: Results of third Quarter 1994 Groundwater Sampling at the Kellogg's Korner Site

Dear Mr. Brown,

Groundwater sampling for TPH-G, BTEX and lead concentrations was performed at the above referenced site on September 8, 1994. Sampling was completed in accordance with the Kellogg's Korner groundwater sampling plan, dated, March, 1994. Notice to proceed was received by letter from Mr. Stephen Winfree, dated March 7, 1994.

The sampled wells are located on and near the site. Monitor wells number #1 and #4 and recovery well #1 are located in the northwest quadrant of the Alexander Road-Midvale Road intersection on the Kellogg's Korner site. Monitor well #3 is located in the southwest quadrant close to the road intersection. Recovery wells #2 and #3 are located north and south of Alexander Road in the northeast and southeast quadrants of the road intersection (see site plan).

Prior to sampling and purging, static water level measurements were completed in each well. This information was obtained to evaluate changes in groundwater gradient and provide data to calculate volumes of stagnate water in wells for purging.

Wells were developed by purging three well volumes of water and allowing the groundwater level to return to its approximate original elevation. Three volume purging was not possible in wells attached to subsurface laterals. Purge water is being stored inside of a fenced area on site, pending disposal.

Temperature and pH values were obtained from water in each well during and following the purging process. The purpose for measuring these parameters is to determine when stagnant well water has been displaced by representative aquifer water. These field parameter may also reflect changes in groundwater chemistry over time.

Quality control and quality assurance field parameters were addressed during sampling. The spike sample (MW#12) is of known constituent concentrations and was submitted "blind" to the primary laboratory to evaluate the accuracy of laboratory results. Monitor Well #3 was sampled twice and labeled separately to act as a duplicate (MW#10) to evaluate the precision of laboratory results. A trip blank was prepared for this sampling event in accordance with the sampling plan. Since disposable bailers were used decon and equipment blank samples were not taken.

Groundwater samples were collected after developing all monitoring and recovery wells.

Samples were collected using disposable bailers in laboratory supplied containers, labelled, and placed in coolers with ice for temporary storage until received by our state accredited laboratory in Billings, Montana. Groundwater samples were collected between groundwater contact and 3 feet below groundwater surface. Analytical results are summarized in the following table and the laboratory reports are contained following this report. The sample locations are shown on the site plan.

Laboratory results (See Table) show BTEX or TPH-G concentrations in groundwater samples exceeded WDOE Method A action levels in Recovery wells #1 and 3, and Monitoring Well #3. Laboratory analysis of the trip blank and the duplicate of MW#3, (MW#10) indicates good laboratory and site analytical procedure and quality control. The spike sample analytical results, indicated on the table as MW#12, is within the certified gasoline hydrocarbon values listed by the laboratory providing the spike (Laboaratory certifications provided).

Water temperature and pH values measured on the day of sampling are shown in the table. The pH and temperature values appear to vary indiscriminately and reflect no clear chemical changes have occurred.

Groundwater table elevations in wells and therefore the gradient direction does not appear to have changed significantly from previous measuring events. A copy of the field groundwater data sheet is included with this report.

No recommendations are made other than continued sampling quarterly as designated by the groundwater sampling plan of March 1994.

We will be supplying the Washington State Department of Ecology analytical results. If you have any questions or need more information regarding any of this groundwater data please feel free to contact us at your earliest convenience.

Respectfully submitted,
Huntingdon Engineering and Environmental

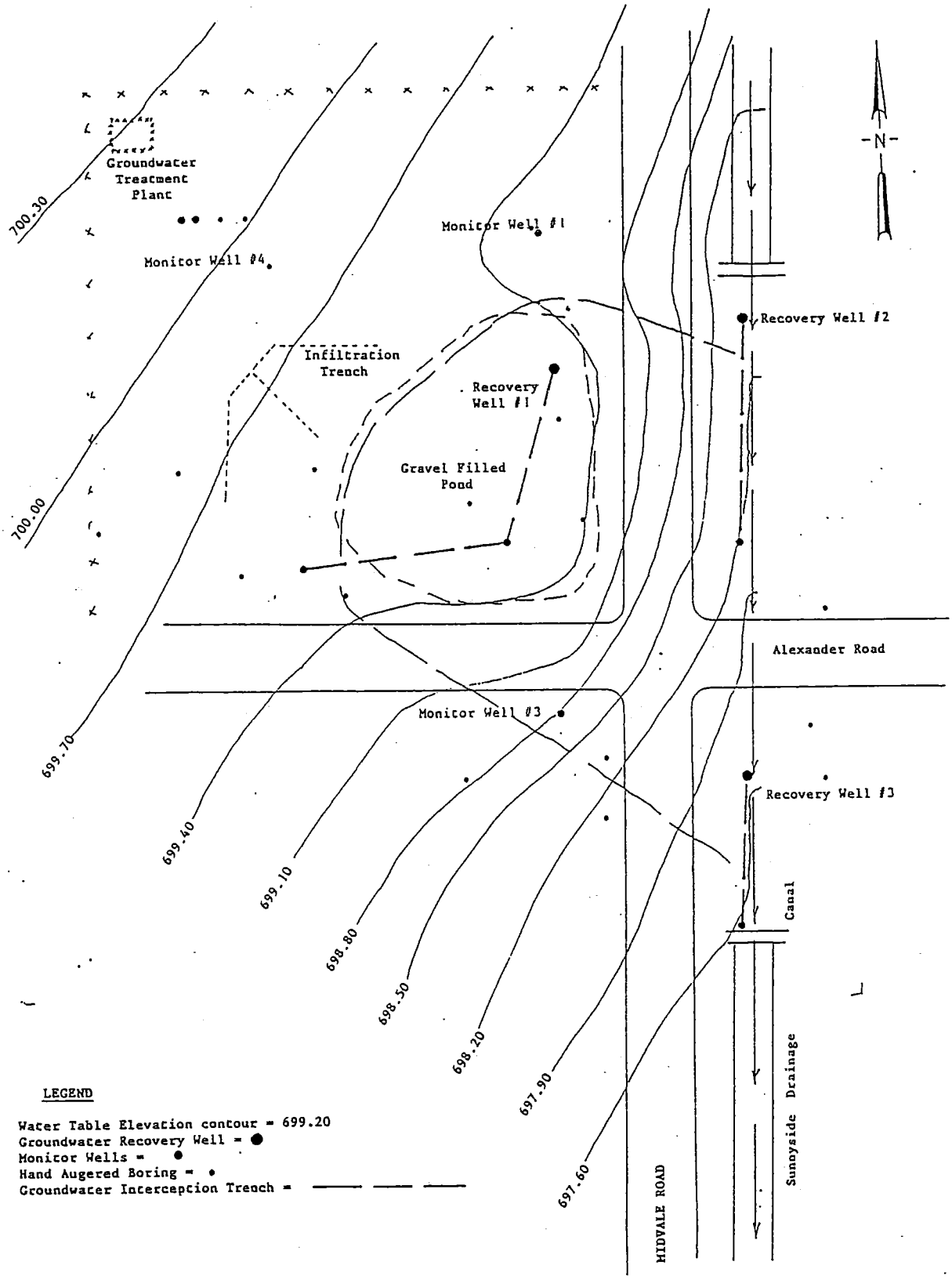
Paul Danielson
Project Manager

Gerald G. Harper
Division Manager

cc: Mr. Donald Abbott, WDOE

KELLOGGS KORNER
THIRD QUARTER 1994
GROUNDWATER SAMPLING RESULTS

LOCATION	DATE	TPH-G ug/l	BENZENE mg/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENE ug/l	LEAD mg/l	Ph	TEMP ERTURE
MW #1	9-8-94	0.2	<1	<1	<1	<3	<0.01	8.2	70°
RW #1	9-8-94	<0.1	8	<1	<1	<3	<0.01	7.2	70°
RW #2	9-8-94	0.1	<1	2	<1	<3	<0.01	7.7	68°
MW #3	9-8-94	19	2200	3900	500	2900	0.02	7.4	68°
RW #3	9-8-94	1.6	650	13	49	11	<0.01	7.9	67°
MW #4	9-8-94	<0.1	<1	<1	<1	<3	<0.01	8.0	70°
MW #10	9-8-94	20	2100	3700	480	2800	-	7.4	68°
MW #12	9-8-94	0.8	-	-	-	-	-	-	-
TRIP BLANK	9-8-94	-	<1	<1	<1	<1	-	-	-



LEGEND

Water Table Elevation contour = 699.20
Groundwater Recovery Well = ●
Monitor Wells = ●
Hand Augered Boring = •
Groundwater Interception Trench = ——— — ———

Chen-Northern, Inc.

SITE PLAN KELLOGG'S KORNER
SUNNYSIDE, WASHINGTON

Date:	Drawn:	Reviewed:	Scale:	Drawing No.:
12-16-92	T.E.D		1"= 60'	

Huntingdon
(Formerly Chen-Northern, Inc.)
600 South 25th Street
P O Box 30615
Billings, MT 59107
(406) 248-9161
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TECHNICAL REPORT

REPORT TO: ATTN: PAUL DANIELSON
HUNTINGDON ENGINEERING &
ENVIRONMENTAL, INC.
P O BOX 2601
TRI-CITIES, WA 99302

DATE: September 28, 1994
JOB NUMBER: 87-921
SHEET: 1 of 12
INVOICE NO.: 027108

REPORT OF: Water Analysis - Kelloggs Korner (194-1961)

SAMPLE IDENTIFICATION:

On September 13, 1994, these water samples (laboratory numbers 154765 through 154775) were received in our laboratory for analysis. The samples were analyzed for volatile organics in accordance with Federal Register Volume 49 No. 209, Method 602 - Purgeable Aromatics.

The total petroleum hydrocarbon determinations were made in accordance with Method 8015 from SW-846, *Test Methods for Evaluating Solid Waste.*

The lead analysis was conducted in accordance with EPA 600/4-79-020 *"Methods for Chemical Analysis of Water and Wastes".*

The condition of the samples upon receipt at the laboratory is noted on the attached sample receipt checklist.

The test results are shown on the following pages. Chromatograms are attached for your reference.

A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.

Reviewed by David Connell

Attachments: Chromatograms
Sample Receipt Checklist

rmr

As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of our clients and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval. Samples will be disposed of after testing is completed unless other arrangements are agreed to in writing.

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154765
Sample Name: MW#1
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1215
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	<0.01	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs26			
Data File Number-Volatiles	fcs24			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	0.2	mg/l	8015	09/13/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	<1	µg/l	602	09/13/94
Ethylbenzene	<1	µg/l	602	09/13/94
Toluene	<1	µg/l	602	09/13/94
Total Xylenes	<3	µg/l	602	09/13/94

Project No.: 87-921
Laboratory No.: 154766
Sample Name: MW#12
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1200
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs30			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	0.8	mg/l	8015	09/13/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154767
Sample Name: TRIP BLANK
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1330
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
MISCELLANEOUS				
Data File Number-Volatiles	fcs26			
VOLATILE ORGANIC COMPOUNDS				
Benzene	<1	µg/l	602	09/13/94
Ethylbenzene	<1	µg/l	602	09/13/94
Toluene	<1	µg/l	602	09/13/94
Total Xylenes	<3	µg/l	602	09/13/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154768
Sample Name: MW#10
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1330
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs44			
Data File Number-Volatiles	fcs44			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	20	mg/l	8015	09/14/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	2100	µg/l	602	09/14/94
Ethylbenzene	480	µg/l	602	09/14/94
Toluene	3700	µg/l	602	09/14/94
Total Xylenes	2800	µg/l	602	09/14/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154769
Sample Name: MW#3
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1300
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	0.02	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs45			
Data File Number-Volatiles	fcs45			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	19	mg/l	8015	09/14/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	2200	µg/l	602	09/14/94
Ethylbenzene	500	µg/l	602	09/14/94
Toluene	3900	µg/l	602	09/14/94
Total Xylenes	2900	µg/l	602	09/14/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154770
Sample Name: MW#4
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1200
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	<0.01	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs33			
Data File Number-Volatiles	fcs29			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	<0.1	mg/l	8015	09/13/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	<1	µg/l	602	09/13/94
Ethylbenzene	<1	µg/l	602	09/13/94
Toluene	<1	µg/l	602	09/13/94
Total Xylenes	<3	µg/l	602	09/13/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154771
Sample Name: RW#1
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1230
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	<0.01	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs34			
Data File Number-Volatiles	fcs30			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	<0.1	mg/l	8015	09/14/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	8	µg/l	602	09/13/94
Ethylbenzene	<1	µg/l	602	09/13/94
Toluene	<1	µg/l	602	09/13/94
Total Xylenes	<3	µg/l	602	09/13/94

Project No.: 87-921
Laboratory No.: 154772
Sample Name: RW#2
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1230
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	<0.01	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs36			
Data File Number-Volatiles	fcs32			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	0.1	mg/l	8015	09/14/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	<1	µg/l	602	09/13/94
Ethylbenzene	<1	µg/l	602	09/13/94
Toluene	2	µg/l	602	09/13/94
Total Xylenes	<3	µg/l	602	09/13/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154773
Sample Name: RW#3
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1230
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	<0.01	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs37			
Data File Number-Volatiles	fcs33			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	1.6	mg/l	8015	09/14/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	650	µg/l	602	09/13/94
Ethylbenzene	49	µg/l	602	09/13/94
Toluene	13	µg/l	602	09/13/94
Total Xylenes	11	µg/l	602	09/13/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154774
Sample Name: DUPLICATE 154765 MW#1
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1215
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	<0.01	mg/l	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs28			
Data File Number-Volatiles	fcs25			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	<0.1	mg/l	8015	09/13/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	<1	µg/l	602	09/13/94
Ethylbenzene	<1	µg/l	602	09/13/94
Toluene	<1	µg/l	602	09/13/94
Total Xylenes	<3	µg/l	602	09/13/94

Client Name: **HUNTINGDON - TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 154775
Sample Name: SPIKE 154771 RW#1
Sample Date: 09/08/94
Collected by: TOM MACHESKI
Time Sampled: 1230
Sample Type: WATER

PARAMETER	MEASURED VALUE		METHOD NUMBER	DATE ANALYZED
METALS				
Lead as Pb (Total)	105	%	239.2	09/23/94
MISCELLANEOUS				
Data File Number-TPH Gasoline	rcs35			
Data File Number-Volatiles	fcs31			
PETROLEUM HYDROCARBONS (8015)				
Petroleum Hydrocarbons as Gasoline	93	%	8015	09/14/94
VOLATILE ORGANIC COMPOUNDS				
Benzene	94	%	602	09/13/94
Ethylbenzene	96	%	602	09/13/94
Toluene	92	%	602	09/13/94
Total Xylenes	97	%	602	09/13/94

ATTACHMENTS

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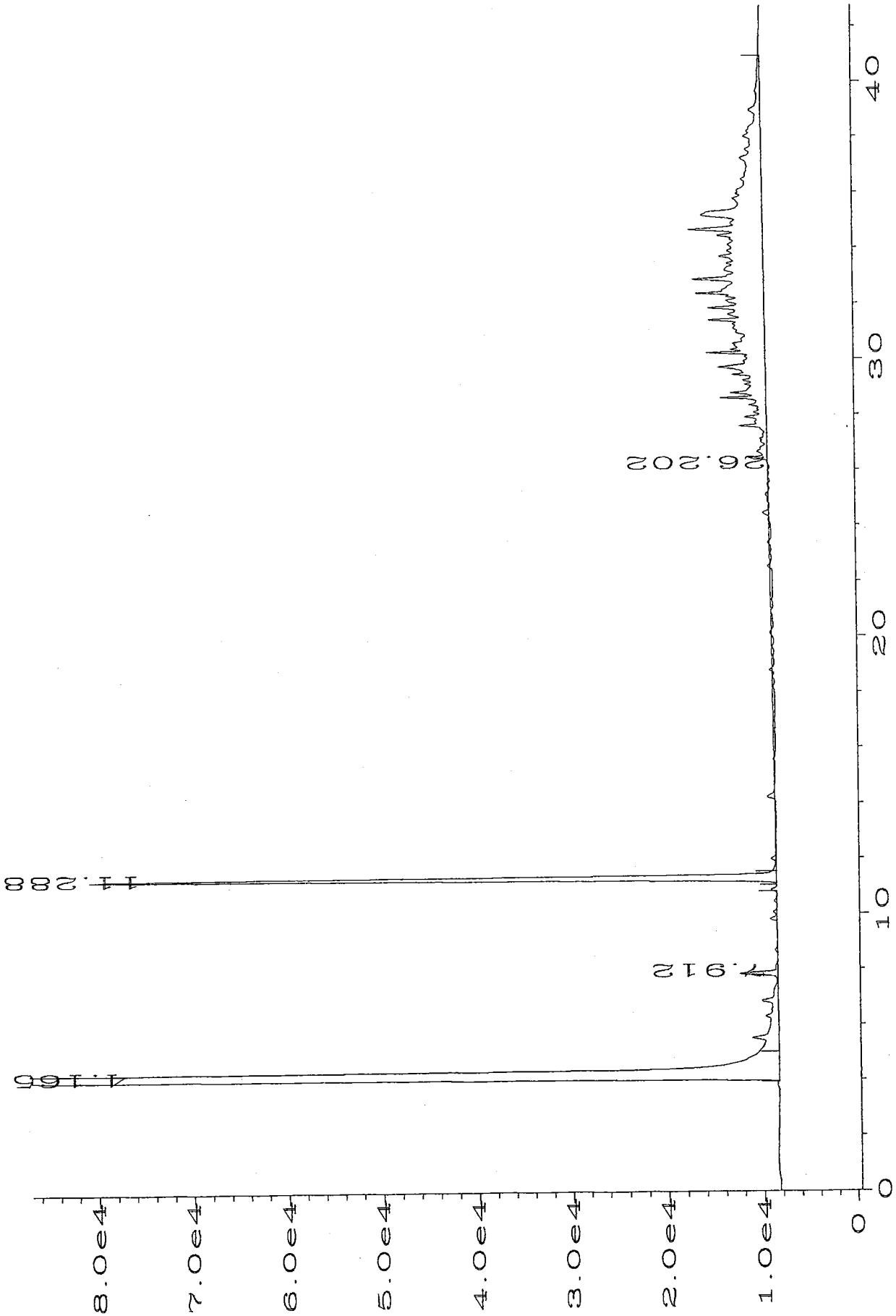

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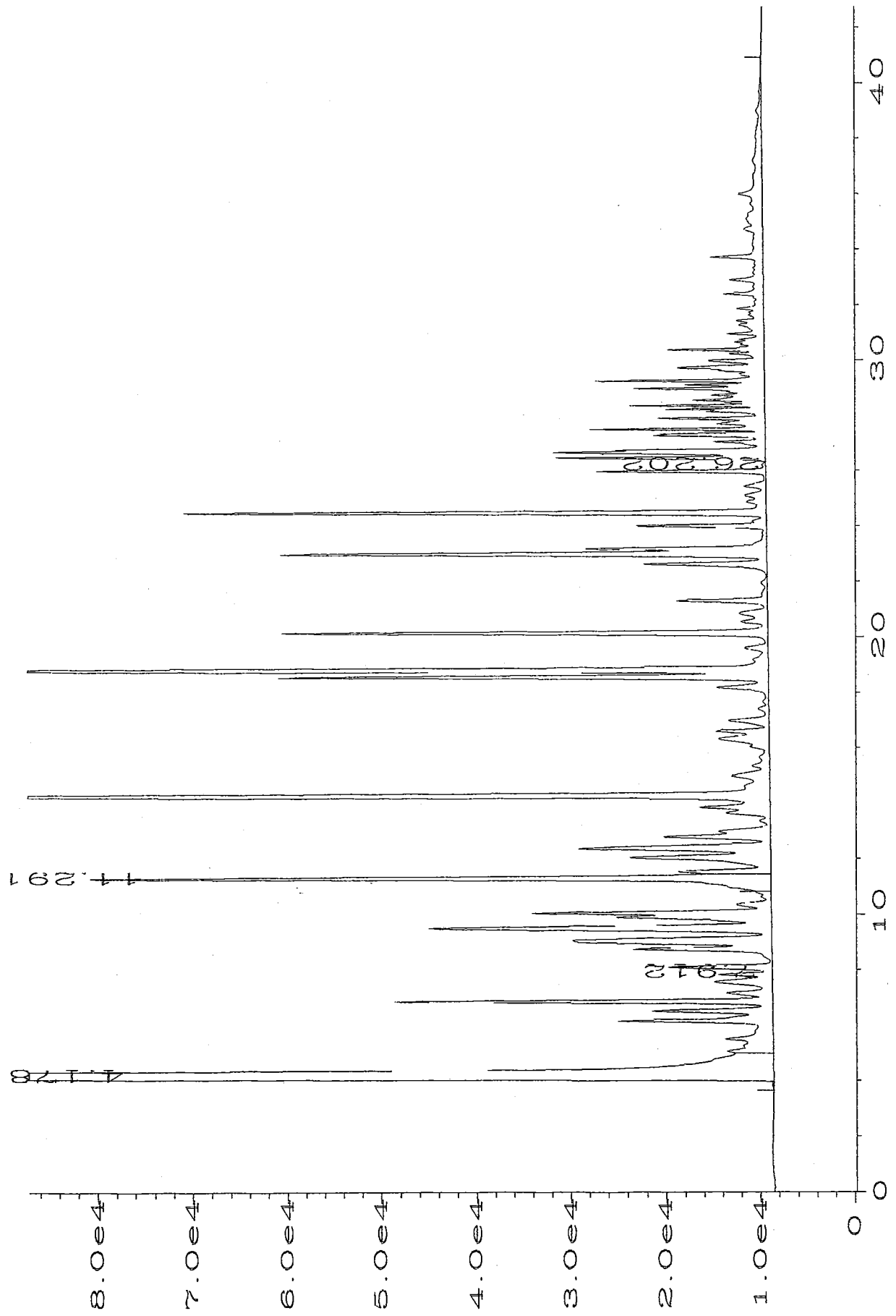

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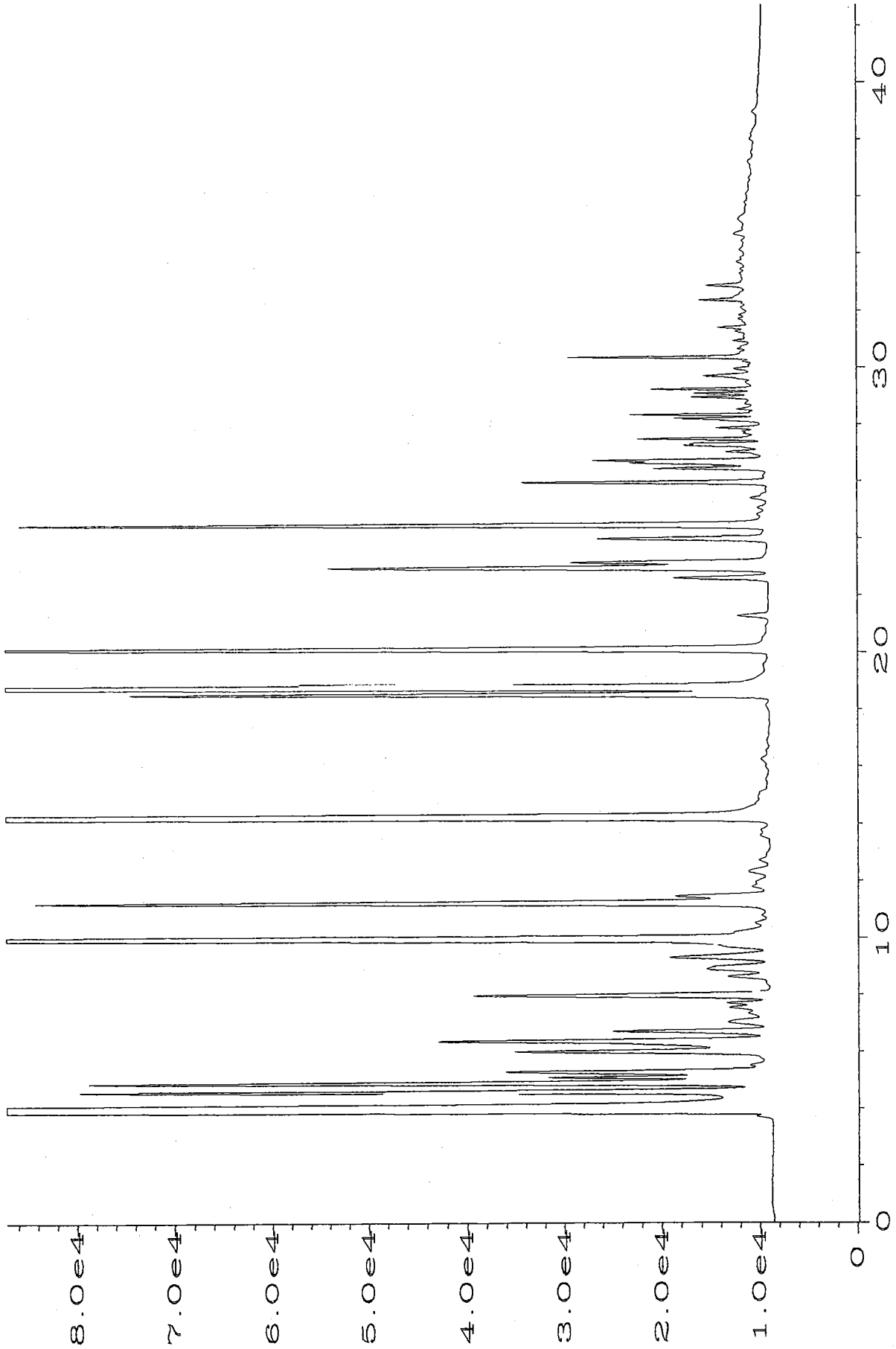

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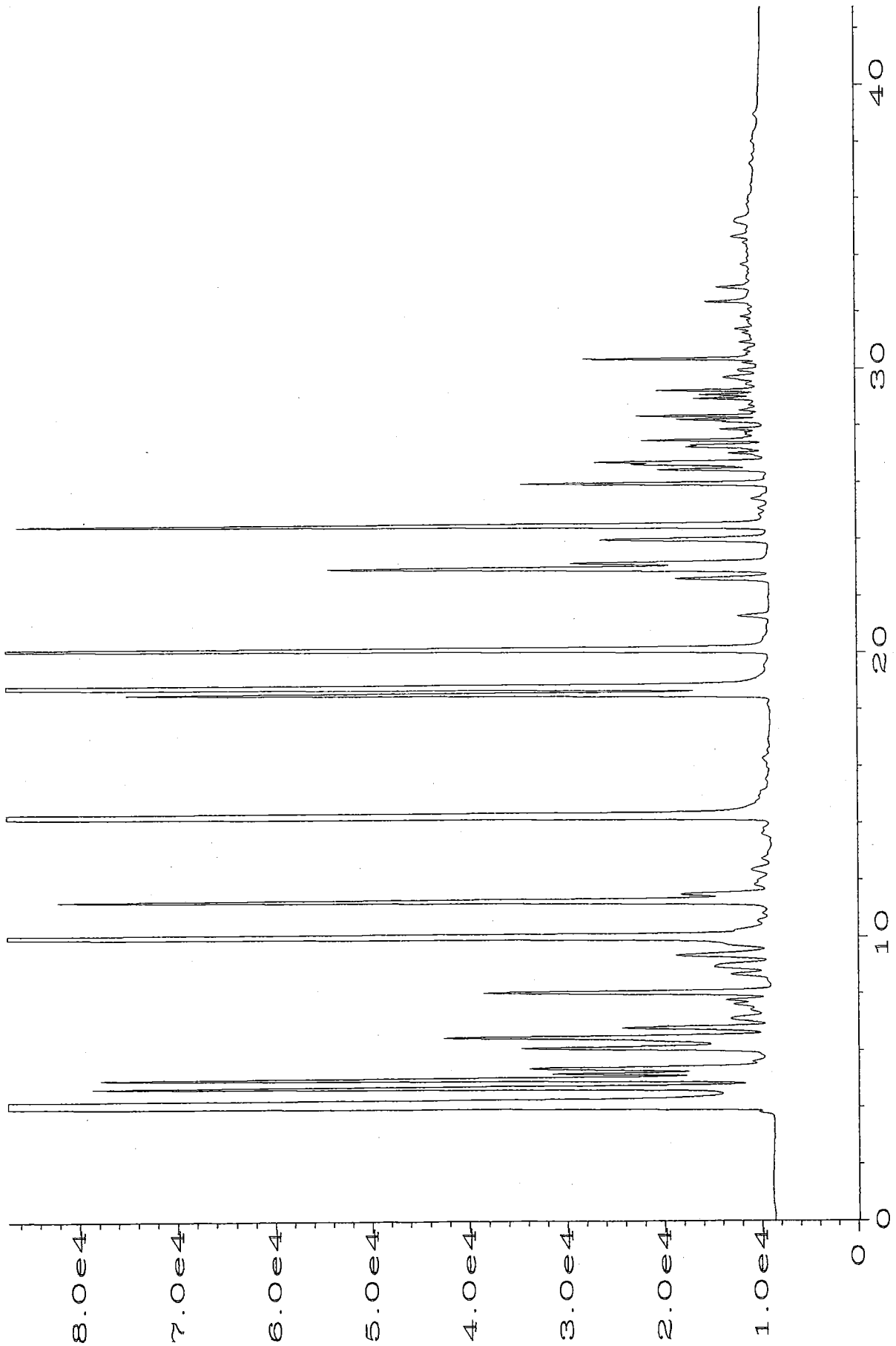

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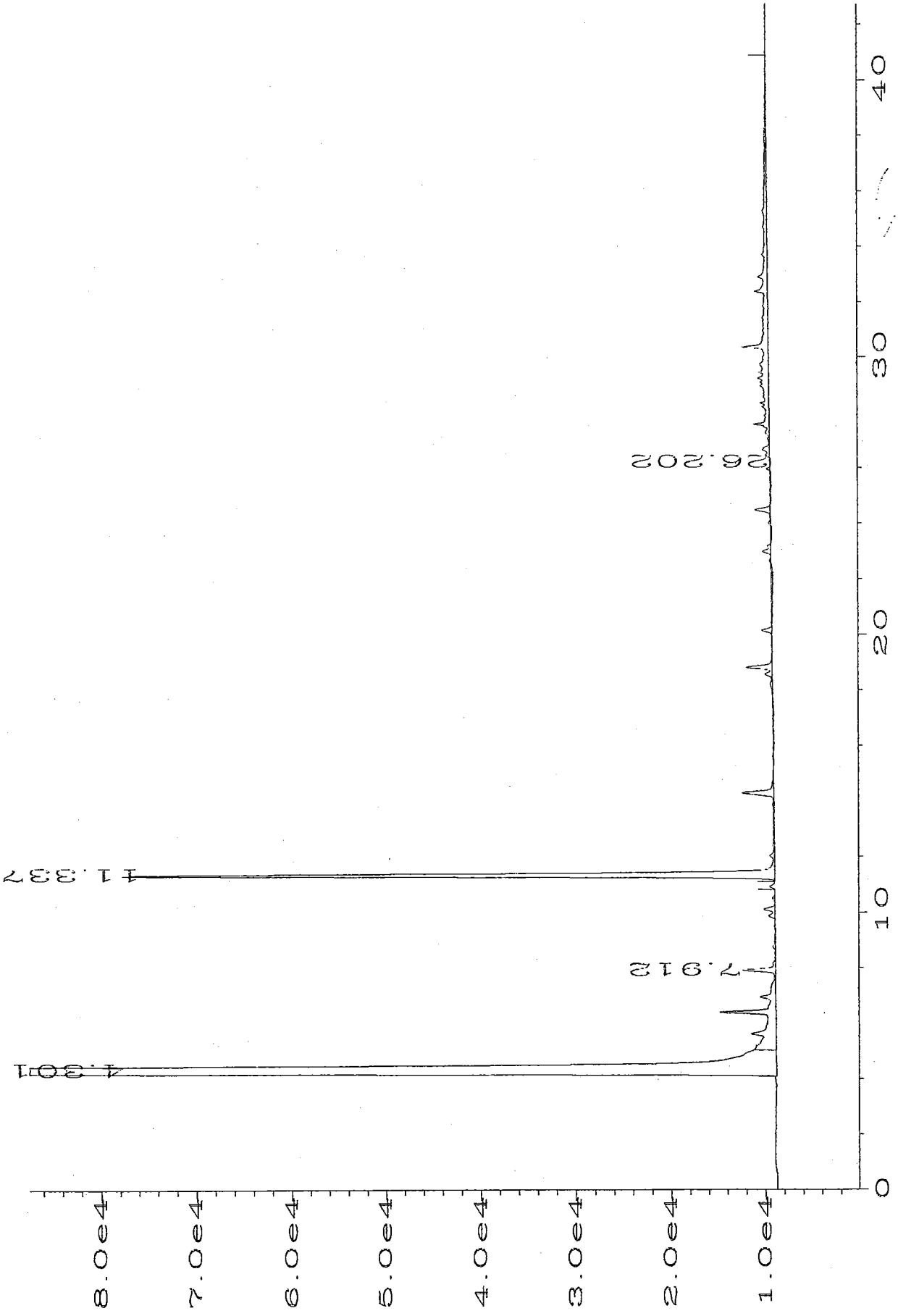

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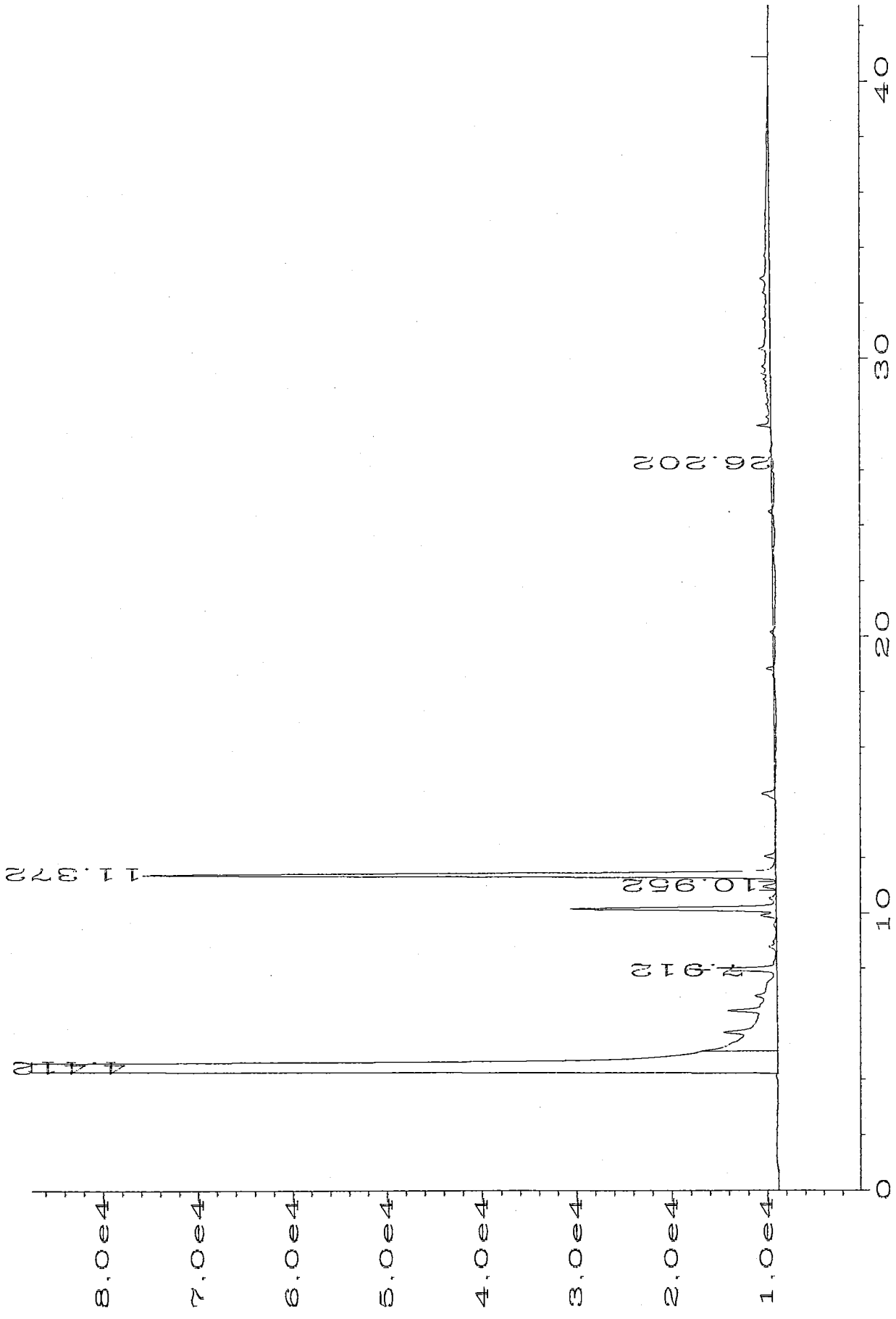

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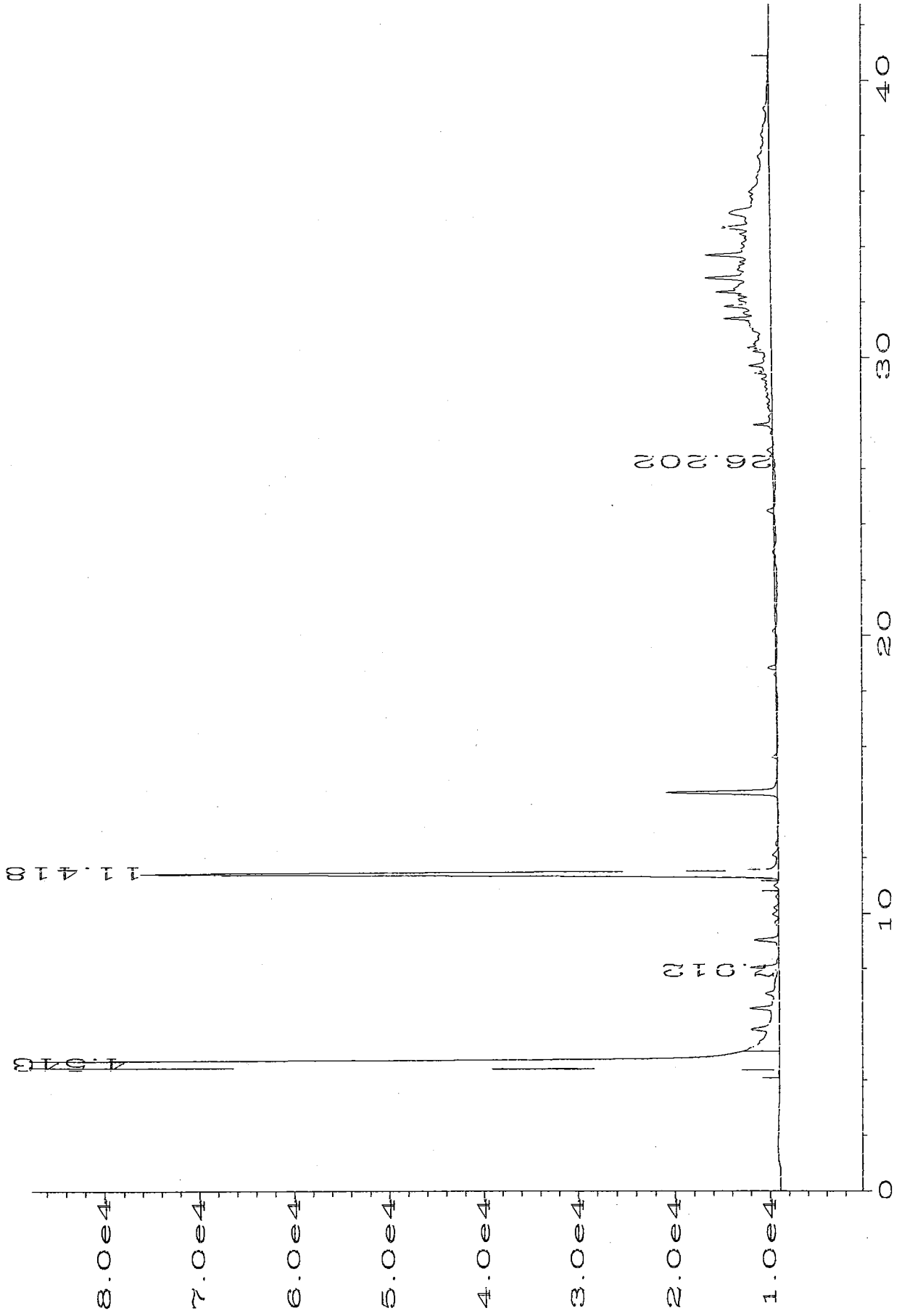

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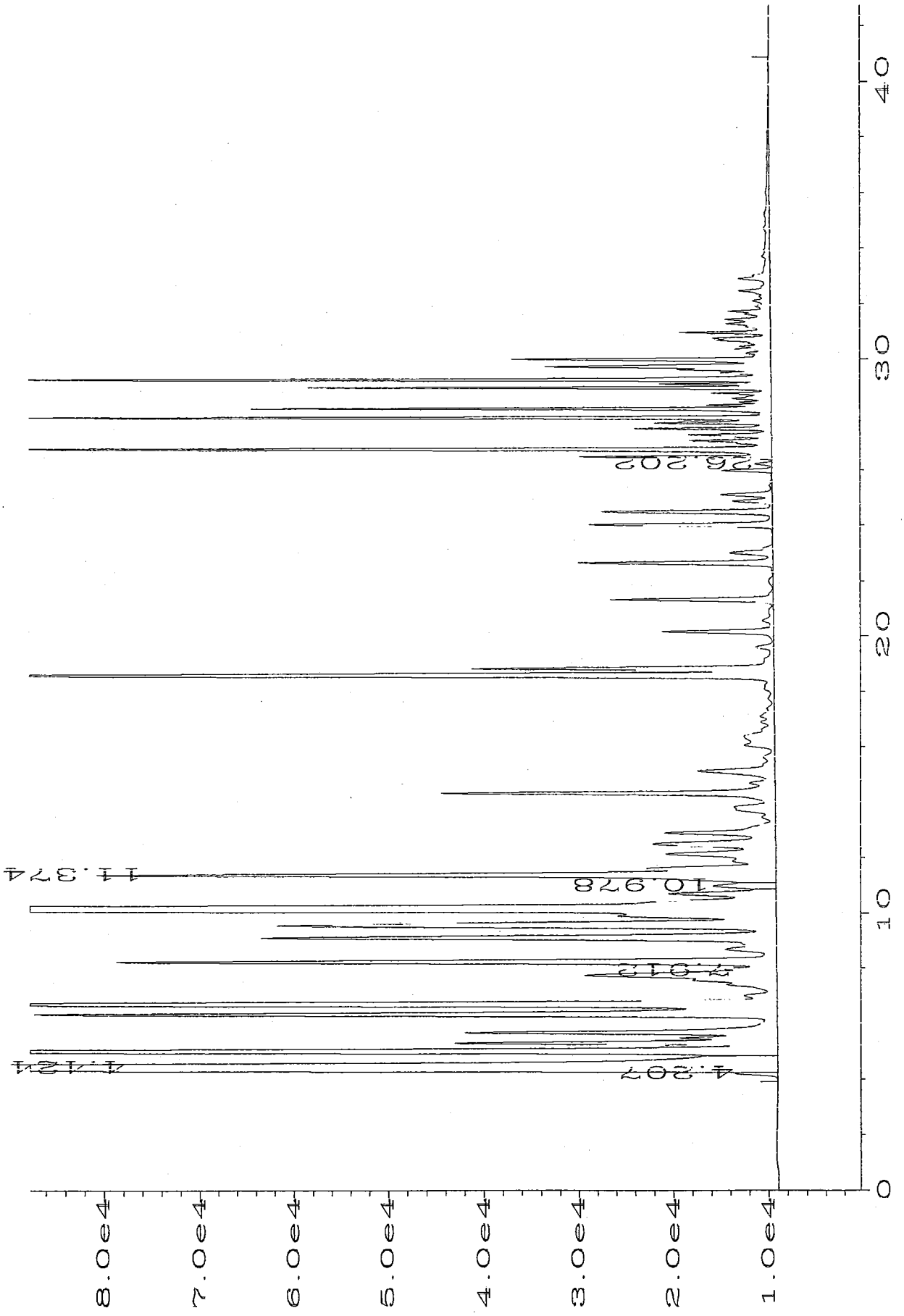

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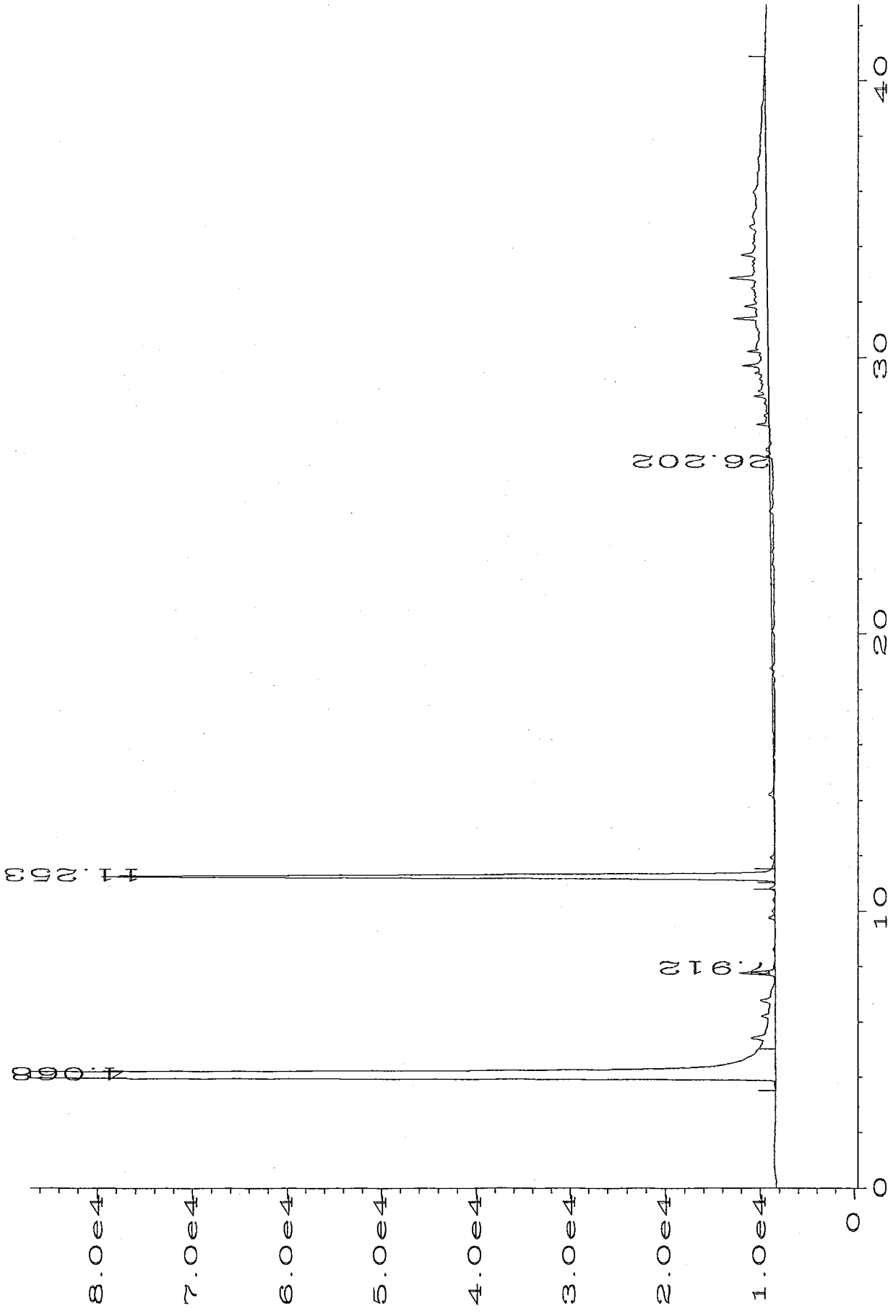

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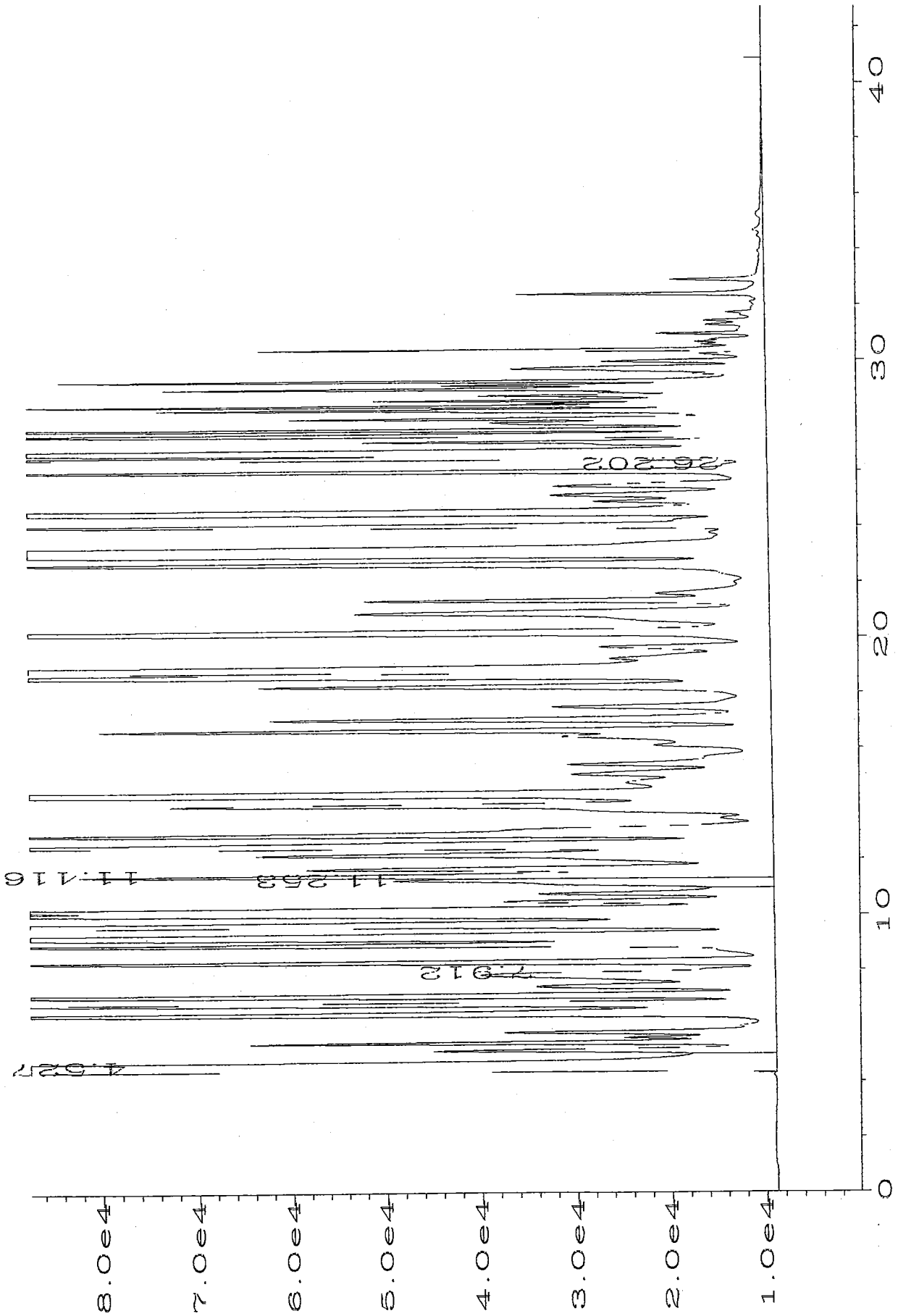

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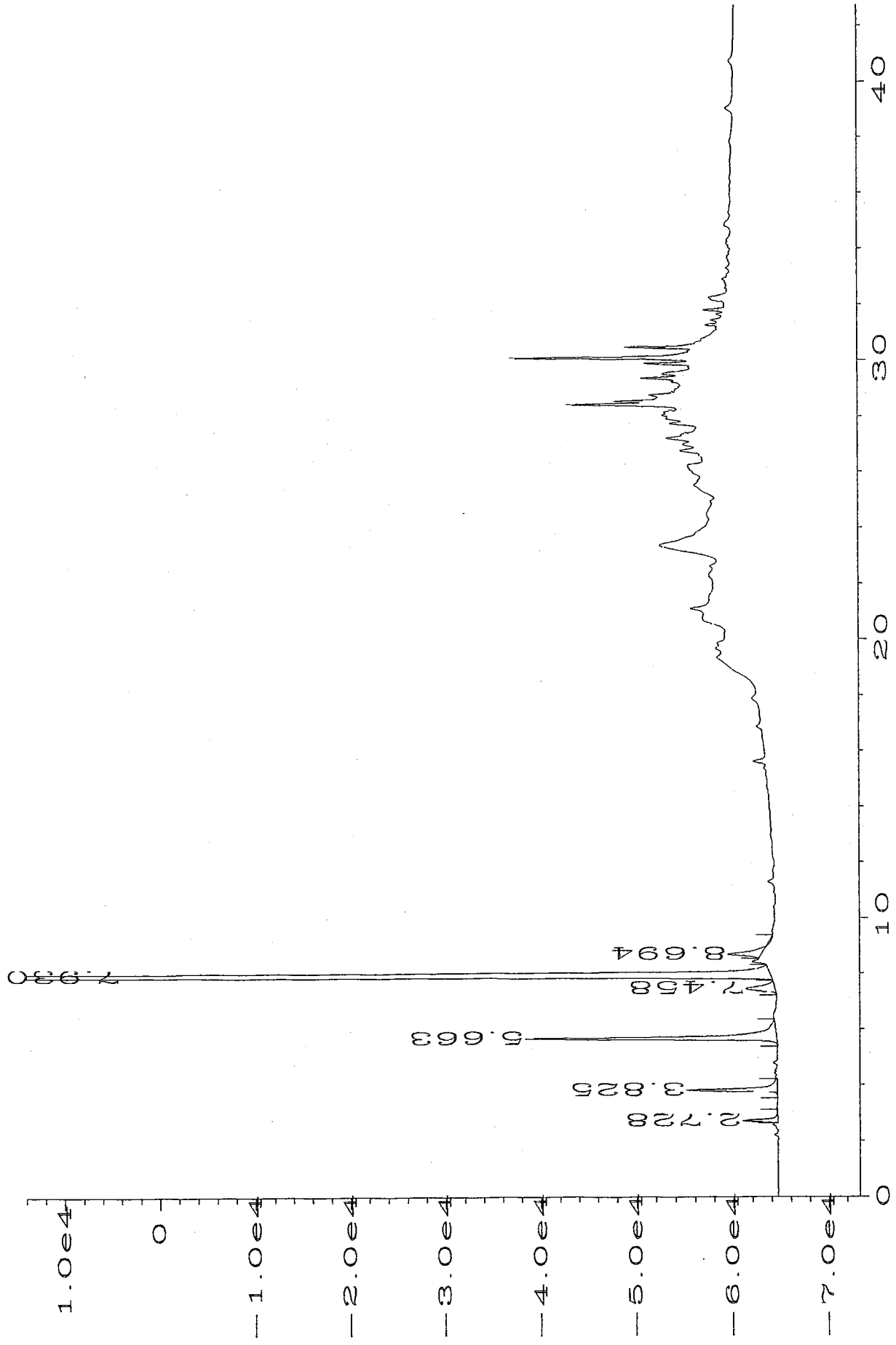

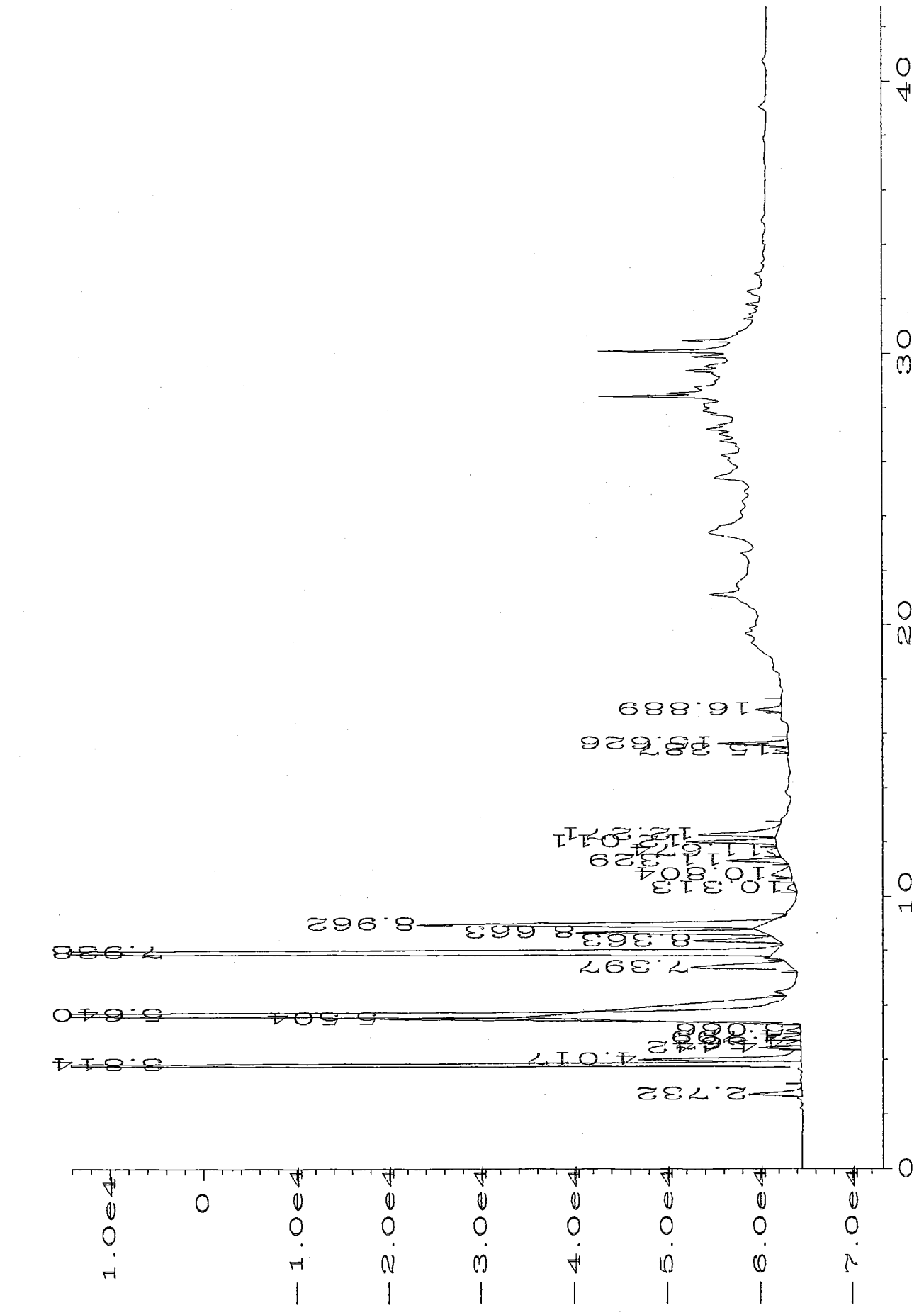
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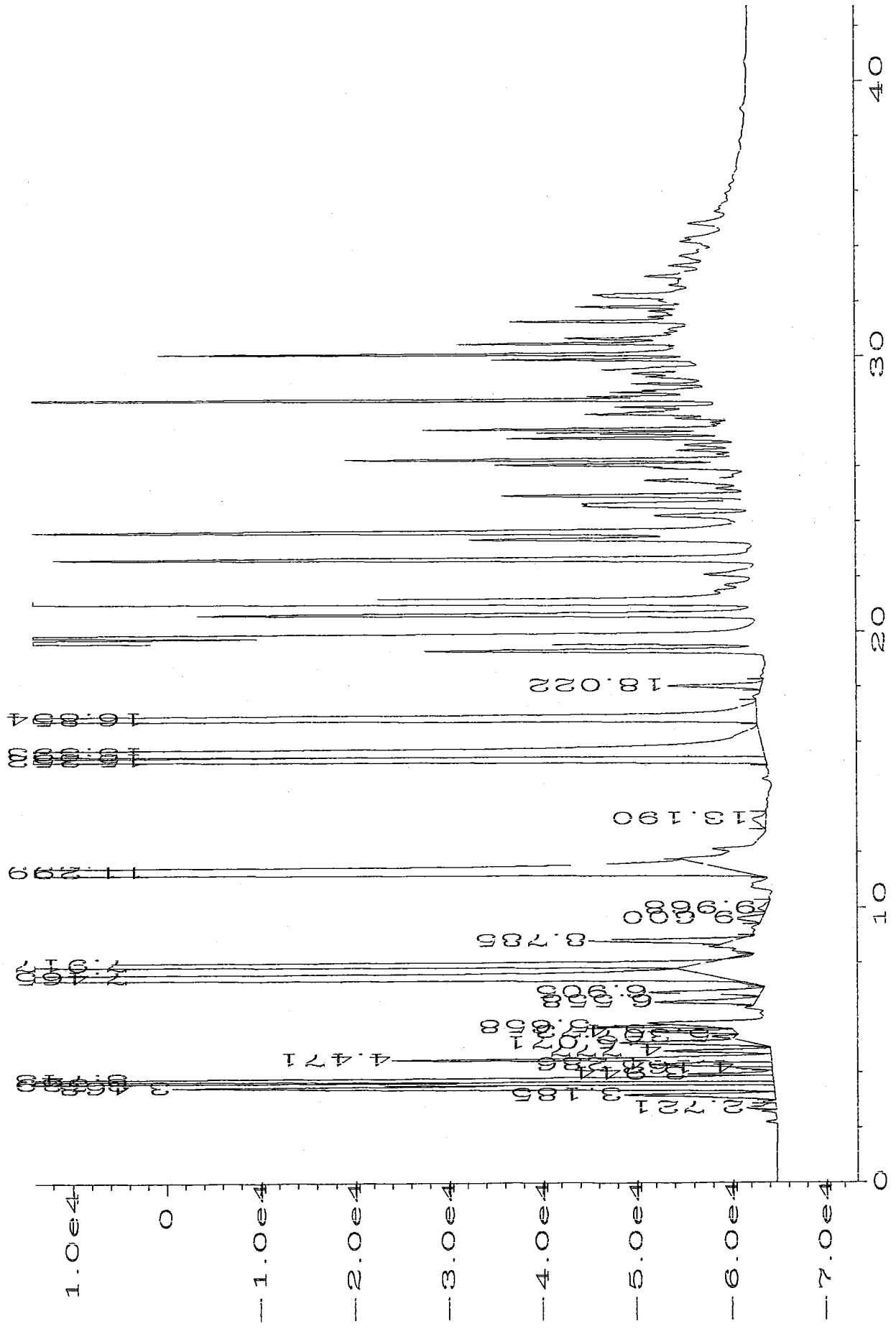

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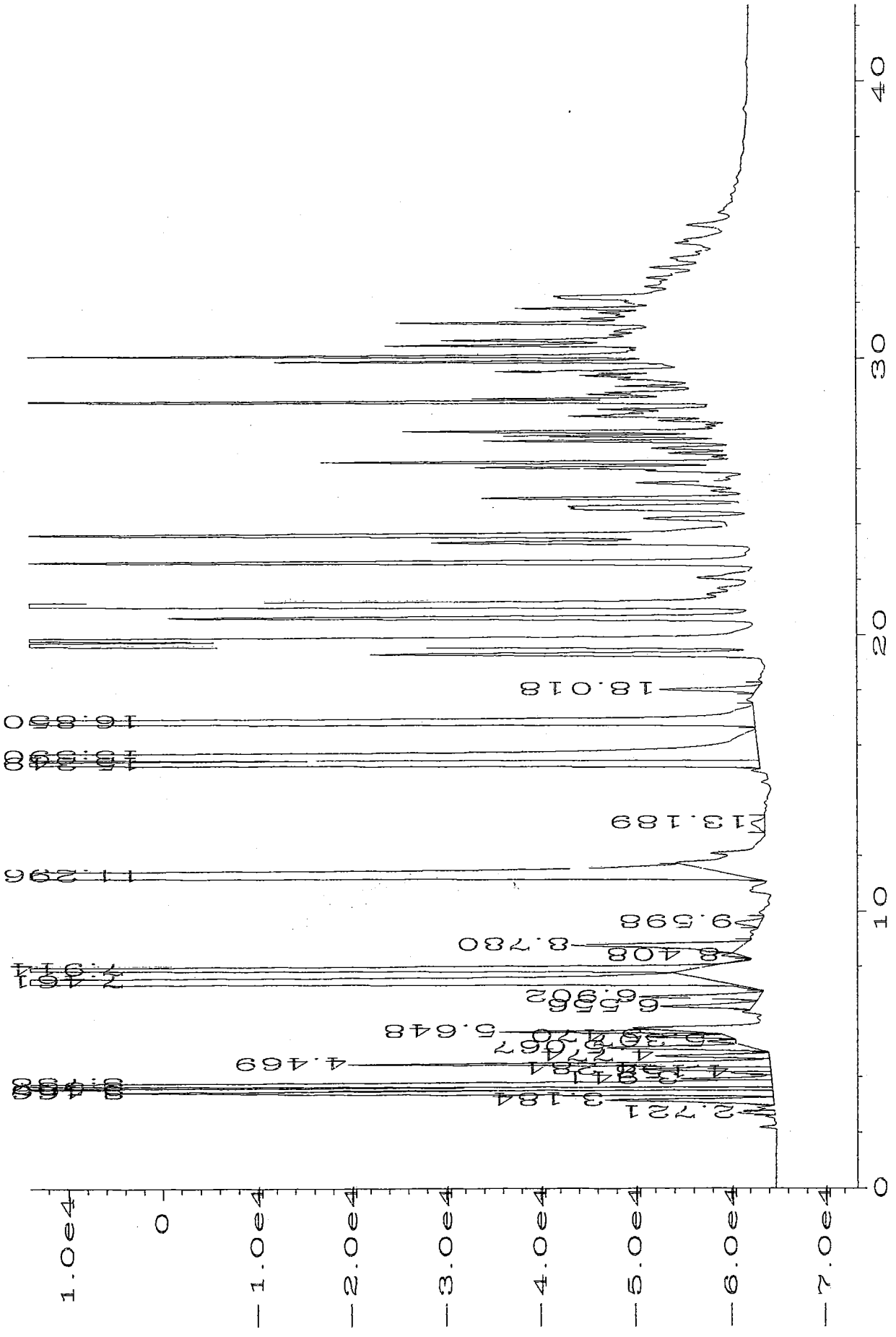

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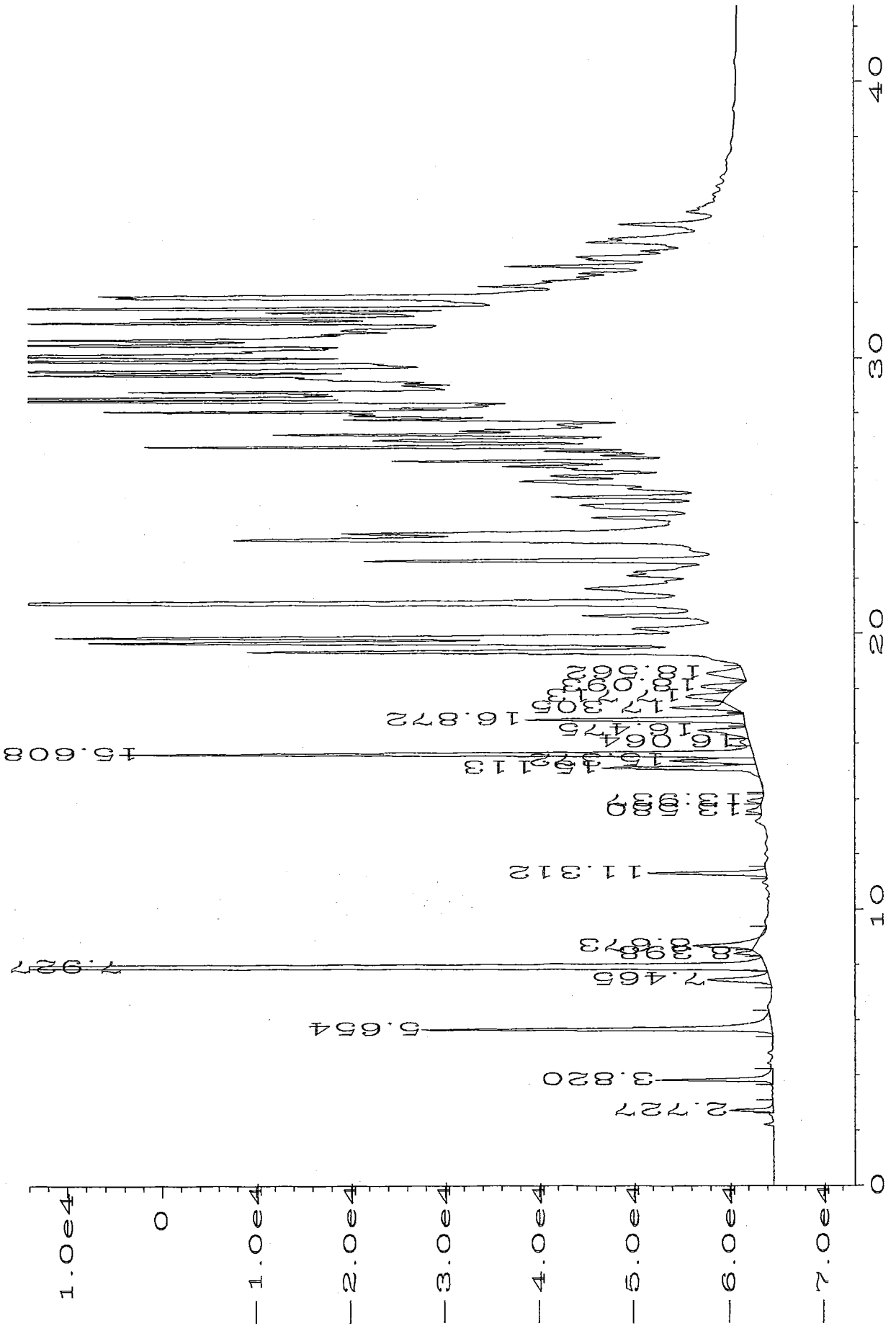

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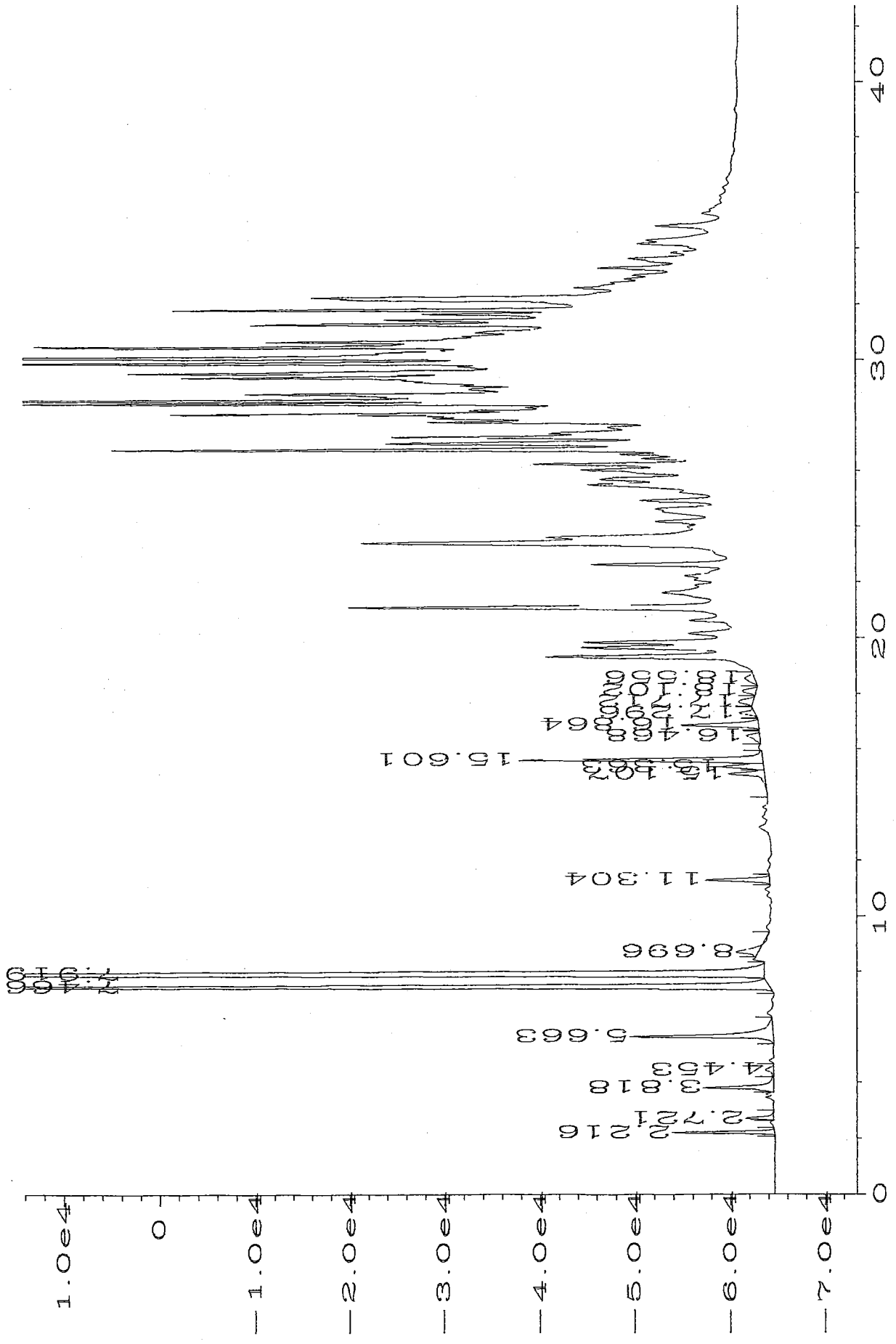

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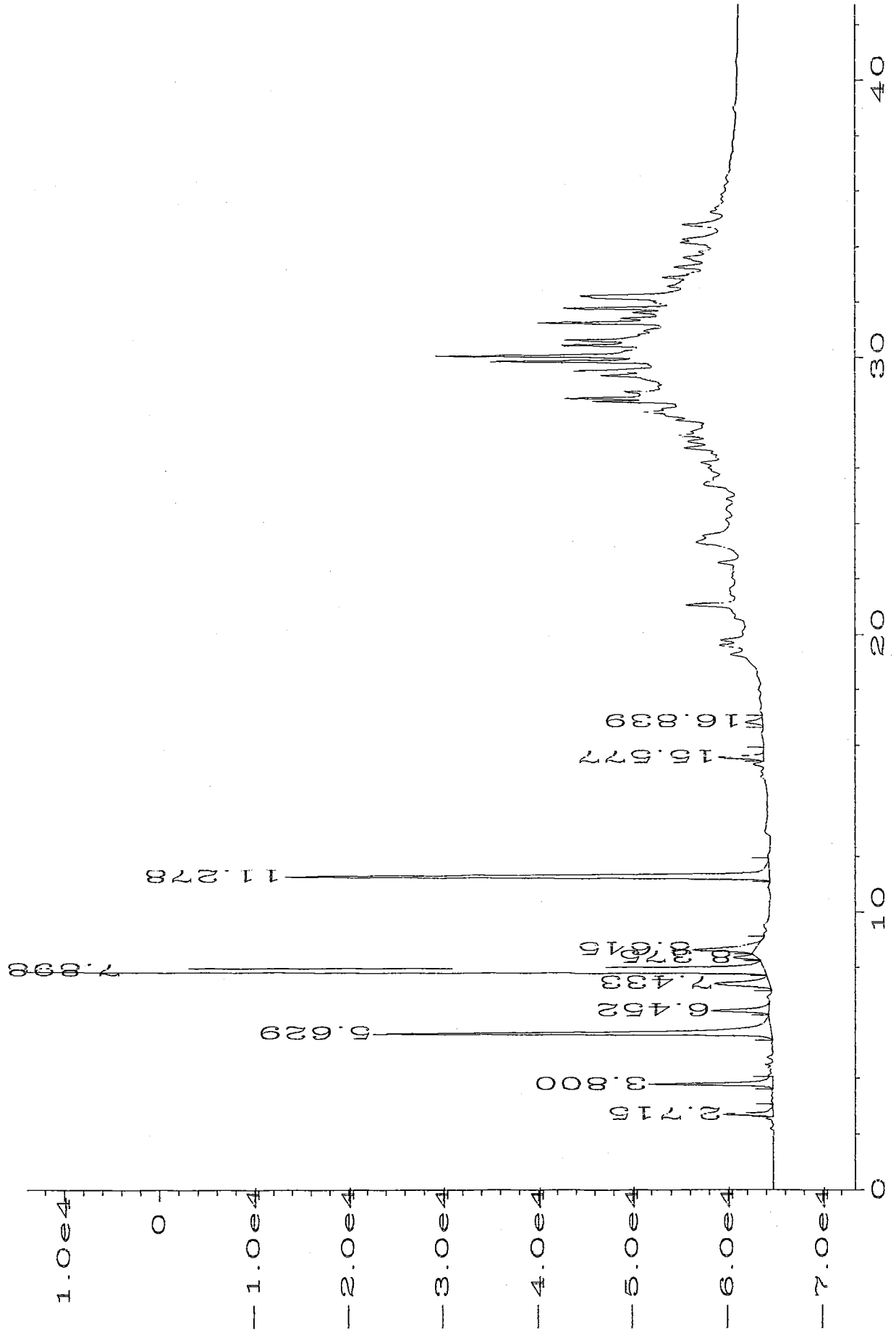

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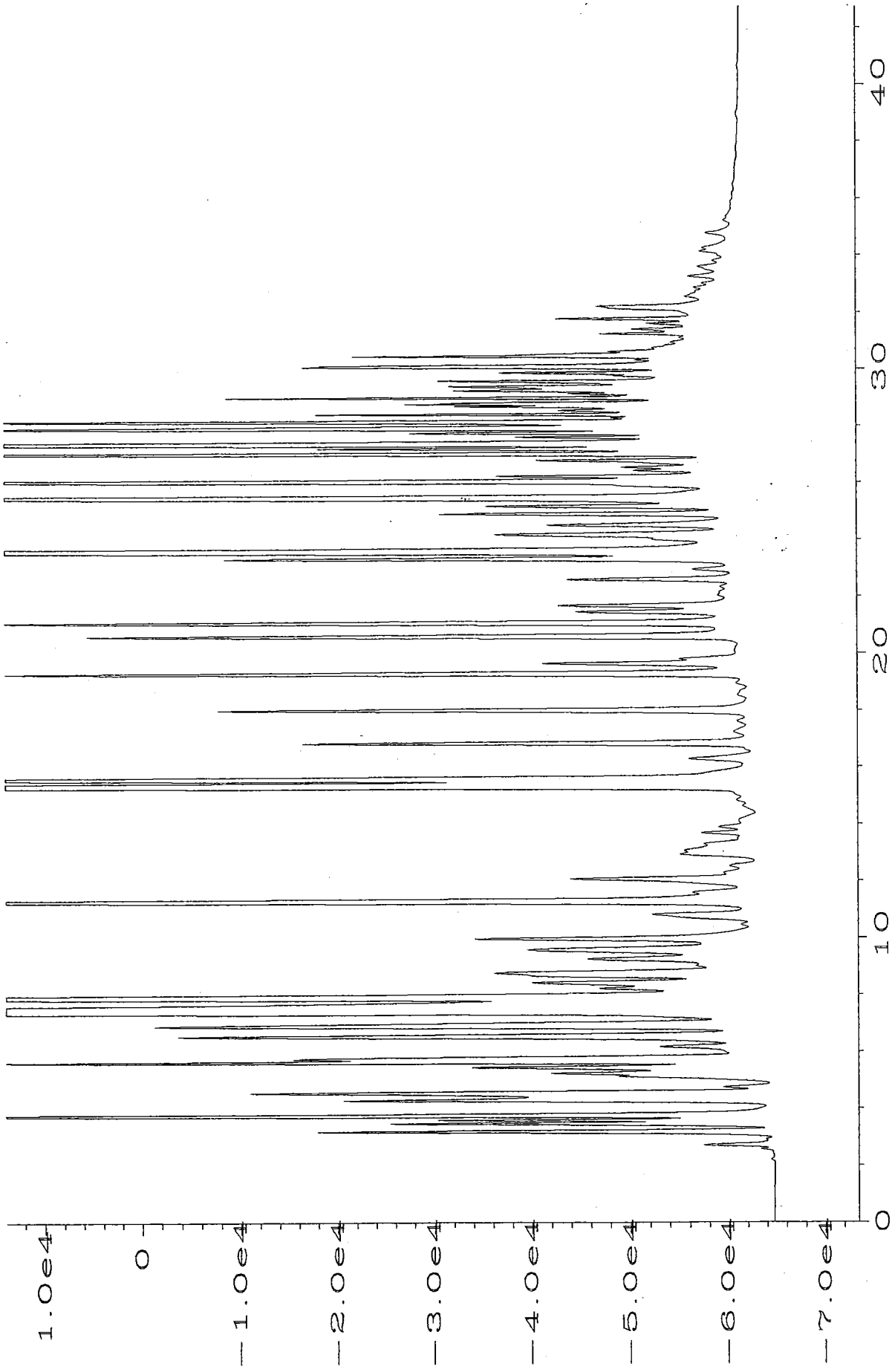

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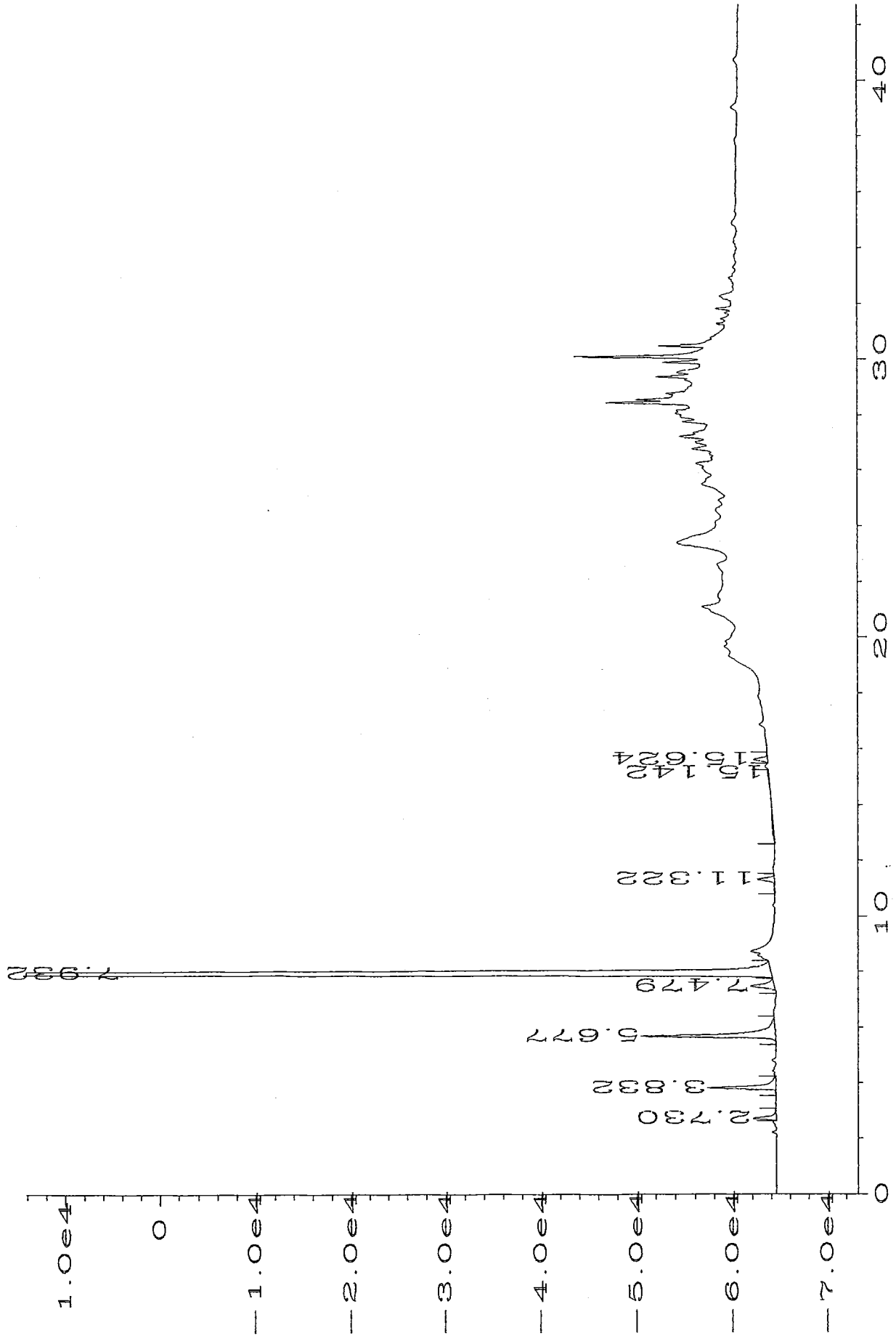

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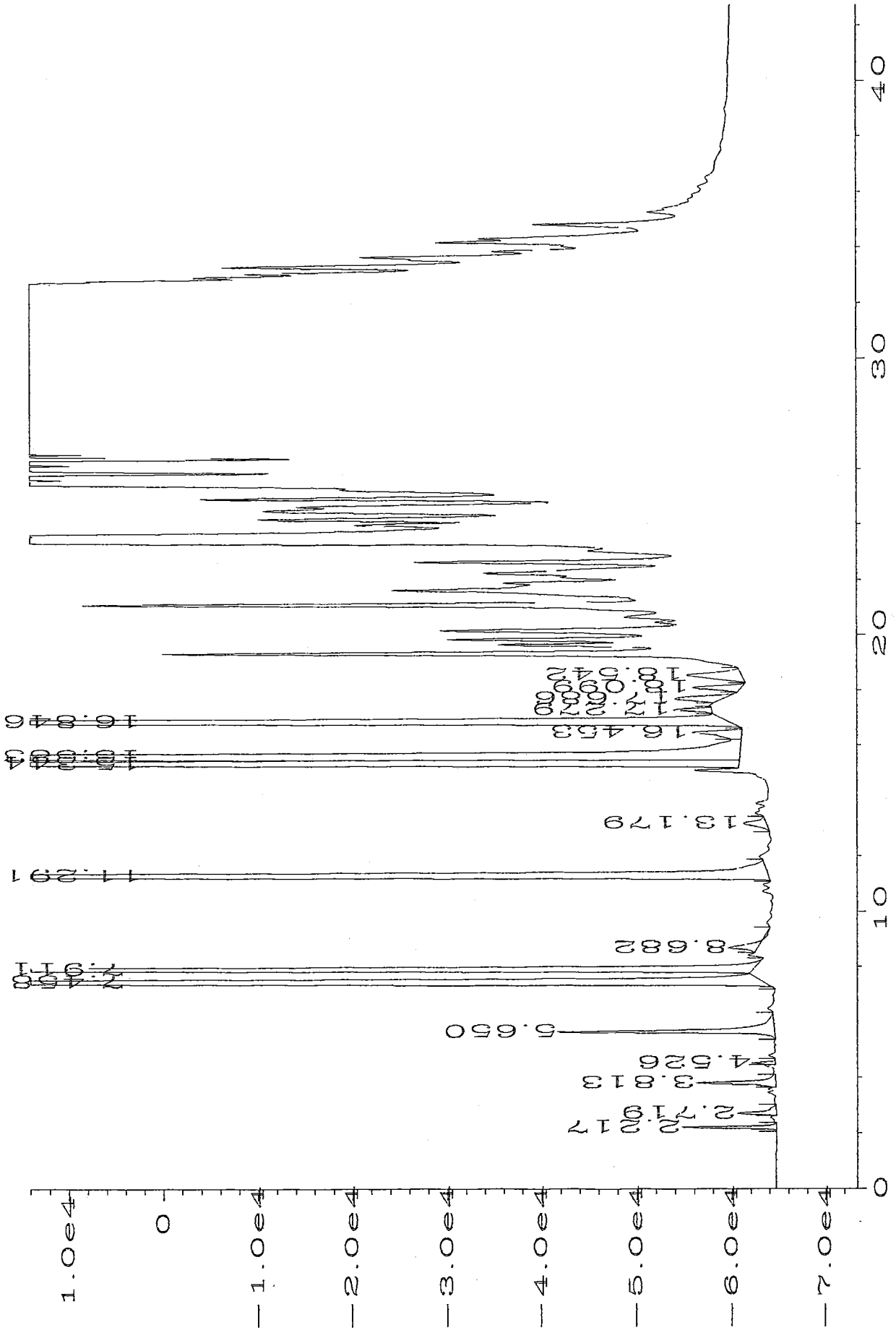

CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers Environmental Scientists

- ☐ Chen-Northern, Inc., Division
- ☐ Thomas-Hartig & Associates, Inc., Division
- ☐ Schaefer Dixon Associates, Inc., Division
- ☐ Herzog Associates, Inc., Division

Kellogg Hanson
Project or Site Name

194-1961
Project Number

Tom Machuski
Sampler Name (Printed)

Paul Daniels on
Contact or Report to

Tri-Citie
Contact Address or Location

Tom Machuski
Sampler Signature

DATE COLLECTED	TIME COLLECTED	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED: TPH-D 8015	ANALYSIS REQUIRED: BTEX 602	ANALYSIS REQUIRED: LEAD	NOTES	LAB NUMBER
9/8/94	12:15	MW#1	G	Water	5	X	X	X		154765
9/8/94	12:00	MW#12	"	"	2	X				66
9/8/94	13:30	TRIP BLANK	"	"	2		X			67
9/8/94	"	MW#10	"	"	4	X	X		excessive headspace 2 VOA's	68
9/8/94	13:00	MW#3	"	"	5	X	X	X	excessive headspace 2 VOA's	69
	12:00	MW#4	"	"	5	X	X	X	headspace 2 VOA's	70
	12:30	RW#1	"	"	5	X	X	X		71
	12:30	RW#2	"	"	5	X	X	X	excessive headspace 2 VOA's	72
	12:30	RW#3	"	"	5	X	X	X	headspace 2 VOA's	73
									NO 154765 MW#1 9/8 1215	74
									Remark 154771 RW#1 ↓ 1230	75

	Date	Time	Received by:
Relinquished by:	8-12-94	8:00	Carrier/Fed X
Relinquished by:	9/13/94	0940	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Cooler temp 15°C

ENVIRONMENTAL
RESOURCE ASSOCIATES
Arvada, Colorado 80002 1-800-ERA-0122

Certification Hydrocarbon Fuels in Water

Lot 82004

Parameter	Certified Value [1] ug/L	Advisory Range [2] ug/L
Unleaded Gasoline	953	334 - 1240

CUSTOM LOT#
0908-94-04

(1) Certified value is equal to 100% of the parameter in the indicated standard.

(2) Advisory range is listed as a guideline for acceptable recoveries given the limitations of the EPA methodologies commonly used to determine this parameter.

recycled paper

Environmental Resource Associates

Interlaboratory Analytical Data - Unleaded Gasoline in Water

Lot 82004

	Parameter	Certified Value ug/L	Mean Recovery ug/L	Mean Recovery (%)	n
CUSTOM LOT# 908-94-04	Unleaded Gasoline	953	870	91.3%	22

(1) ERA's Unlead Gasoline in Water standards are analytically verified by direct injection of the standard onto a GC. The Interlaboratory Analytical Data Summary illustrates typical recoveries obtained by laboratories using EPA methodologies.

GROUNDWATER LEVEL DATA SHEET

PROJECT: Kellogg's Korner PROJECT NO.: 194-1961

DATE: 9-8-94 MEASUREMENTS TAKEN BY: Tom Machesky MEASURING DEVICE: water meter

WEATHER CONDITIONS: cloudy

Well No.	Time	Reference Elevation	Depth to Groundwater	Groundwater Elevation	Reference Point	Well Depth	PH	Comments temp
MW #4	0935		8'.12		Top of pvc		8.0	70°
MW #1	0940		10'.15		Top of pvc		8.2	70°
RW #1	0900		9'.80		Top of pvc		7.2	70°
RW #2	0905		4'.20		Top of pvc		7.7	68°
RW #3	0910		5'.70		Top of pvc		7.9	67°
MW #3	915		9'.50		Top of pvc		7.8	68°
MW #10	0920		9.50		top of pvc		7.4	68°

NOTES: