NM Laboratory Sdn Bhd 563645-P
78 & 80, Lorong Perda Selatan 1, Bandar Perda, 14000 Bukit Mertajam, PENANG, MALAYSIA.
t 604-538 8081 • 538 8082 • 537 8082 f 604-537 8084 e enquiry@nmlab.com.my
www.nmlab.com.my

the truth revealed

TEST REPORT

To : **MIROAD RUBBER INDUSTRIES SDN. BHD.**
Lot 6224, Batu 17 1/2,
Jalan Air Hitam,
81400 Senai, Johor,
Malaysia.
Attn: Ms. Xiao Qian

Report No. : IP1602-0415-2

Page No : 1 of 4

Date of Issue : 14/03/2016

The following sample(s) was(were) identified by the customer as :
EPDM GRANULES
SIZE : 1-4 MM
Colour : RED (01)

Date of Sample Received : 25/02/2016
Date of Testing : 25/02/2016 to 14/03/2016

Objective :
1. To determine Volatile Organic Compounds (VOCs) in sample received via equilibrium headspaces analysis at 100°C for 15 minutes by GC-MS (Based on the MS Library of NIST 2.0f Version 2008).
2. Determination of Lead in accordance with EU Directive 2011/65/EU (RoHS).

Remark : Sampled and submitted by MIROAD RUBBER INDUSTRIES SDN. BHD.

Test Performed by : Yip Pooi Chee

Signed for and on behalf of
NM LABORATORY SDN. BHD.

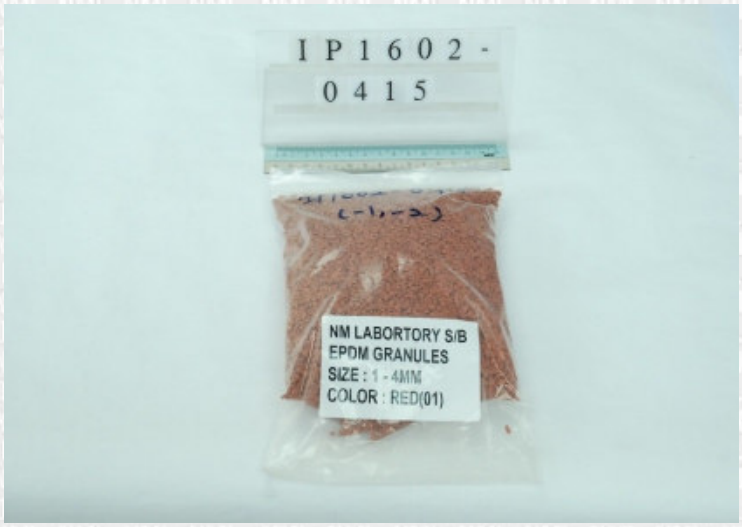
Yeap Cheo Mooi, M.Sc., MMIC
Consulting Chemist
IKM No. M/1913/4300/2002

NM Laboratory Sdn Bhd 563645-P
78 & 80, Lorong Perda Selatan 1, Bandar Perda, 14000 Bukit Mertajam, PENANG, MALAYSIA.
t 604-538 8081 • 538 8082 • 537 8082 f 604-537 8084 e enquiry@nmlab.com.my
www.nmlab.com.my

the truth revealed

Customer : MIROAD RUBBER INDUSTRIES SDN. BHD. **Report No.** : IP1602-0415-2
Date Of Issue : 14/03/2016 **Page No.** : 2 of 4

Sample Photograph(s):



Test Procedure:
Approximately 5g of samples were weight into 22mL sample vial and capped it.
The prepared sample vials were ready for headspace method.

Equipment setting

GC Column – ELITE-5MS

Length	: 30m
Diameter	: 0.25mm
Film thickness	: 0.25µm

Headspace Condition

Oven	: 100°C
Needle	: 105°C
Transfer	: 110°C
Inject Volume	: 0.24 mL

GC Condition

Oven Temperature Programmed

Initial Temperature	: 40°C for 3.0 minute
Ramp 1	: 5°C/minute to 120°C, hold 0.0 minute.
Split Ratio (n:1)	: 250:1
Total GC Run Time	: *20.00 minutes*

Signed for and on behalf of
NM LABORATORY SDN. BHD.

Yeap Cheo Mooi, M.Sc., MMIC
Consulting Chemist
IKM No. M/1913/4300/2002

NM Laboratory Sdn Bhd 563645-P
78 & 80, Lorong Perda Selatan 1, Bandar Perda, 14000 Bukit Mertajam, PENANG, MALAYSIA.
t 604-538 8081 • 538 8082 • 537 8082 f 604-537 8084 e enquiry@nmlab.com.my
www.nmlab.com.my

the truth revealed

Customer : MIROAD RUBBER INDUSTRIES SDN. BHD. **Report No.** : IP1602-0415-2
Date Of Issue : 14/03/2016 **Page No.** : 3 of 4

MS condition

Source Temperature : 200°C
Transfer Line Temperature : 200°C
Scan Range of MS : 30-500 m/z

MS Library

NIST MS Search Version 2.0f (2008)

Test Result: Volatile Organic Compounds (VOCs)

Composition of Each Compound detected in EPDM Granules at 100°C (% by area)

RT; minute	Area	% by area
1.88	444189536	99.81
2.54	277320	0.06
2.77	286733	0.06
4.75	286789	0.06
TOTAL	445040377	100

Peak identification (Top 3 Hits) in EPDM Granules at 100°C

RT (min)	% by area	Hit	Compound Name	Match	Probability; %
1.88	99.81	1	tert-Butyl Alcohol	898	59.6
		2	Propane, 1-ethoxy-2-methyl-	822	7.51
		3	3-Hydroxy-3-methyl-2-butanone	813	5.45
2.54	0.06	1	1-Pentene, 2-methyl-	722	25.1
		2	Cyclobutane, ethyl-	720	23.2
		3	Cyclopropane, propyl-	714	18.2
2.77	0.06	1	Cyclopropane, propyl-	724	19.6
		2	Cyclohexane	717	15.0
		3	Cyclobutane, ethyl-	716	14.4
4.75	0.06	1	1,3,5-Cycloheptatriene	820	37.2
		2	Toluene	800	16.9
		3	Bicyclo[3.2.0]hepta-2,6-diene	785	10.3

Signed for and on behalf of
NM LABORATORY SDN. BHD.

Yeap Cheo Mooi, M.Sc., MMIC
Consulting Chemist
IKM No. M/1913/4300/2002

NM Laboratory Sdn Bhd 563645-P
78 & 80, Lorong Perda Selatan 1, Bandar Perda, 14000 Bukit Mertajam, PENANG, MALAYSIA.
t 604-538 8081 • 538 8082 • 537 8082 f 604-537 8084 e enquiry@nmlab.com.my
www.nmlab.com.my

the truth revealed

Customer : MIROAD RUBBER INDUSTRIES SDN. BHD. **Report No.** : IP1602-0415-2
Date Of Issue : 14/03/2016 **Page No.** : 4 of 4

Standard Method / Equipment / Technique Description:

Method Ref.No.	Standard Method	Method Description/Title
M-1	IEC 62321,Ed.1;Sec.8 ICP-AES	Determination of lead and cadmium in polymers by ICP-OES, ICP-MS and AAS Inductively Coupled Plasma-Atomic Emission Spectrometry

Test Results(s) : Lead

Parameter	Result	Unit	Method Ref. No	MDL; mg/kg	ROHS Limit; mg/kg
Lead (as Pb)	ND(<1)	mg/kg	M-1	1	1000

Note(s) :
1. The test portion was Totally Dissolved for Lead Test by using pre-conditioning method as mentioned above
2. The test portion was ashed before the pre-conditioning method for Lead test as mentioned above.

Signed for and on behalf of
NM LABORATORY SDN. BHD.

Yeap Cheo Mooi, M.Sc., MMIC
Consulting Chemist
IKM No. M/1913/4300/2002

- End of Report -

NM Laboratory Sdn Bhd 563645-P
78 & 80, Lorong Perda Selatan 1, Bandar Perda, 14000 Bukit Mertajam, PENANG, MALAYSIA.
t 604-538 8081 • 538 8082 • 537 8082 f 604-537 8084 e enquiry@nmlab.com.my
www.nmlab.com.my

the truth revealed

GENERAL TERMS AND CONDITIONS

This report / certificate by NM Laboratory Sdn. Bhd., herein referred to as NML, is in accordance with and subject to the terms and conditions herein contained:

1. The sample(s) submitted by the customer shall be tested / analysed according to any published standard method or non-published method as discussed and agreed upon by the customer and NML. In the absence of any written instruction, the customer is deemed to have agreed and accepted the standard method or technique used by NML in the testing / analysis of sample(s). However, NML shall state in the report / certificate the standard method or technique used, where appropriate.

2. This report / certificate is not a certificate of quality. The result(s) of testing / analysis performed by NML is applicable to the particular sample(s) received at the time of testing / analysis. They do not indicate or imply that NML approves, recommends or endorses the manufacturers or suppliers or users of products and it shall not be used to imply product certification.

3. The overleaf test / analysis result(s) is / are based solely on the sample(s) submitted by the customers. NML assumes no responsibility for the accuracy of information on the name, type, class, brand or model number of products or any information supplied by the customers.

4. This report / certificate is only valid when signed by an authorized chemist or approved signatory of NML. The report / certificate shall not be reproduced except in full by NML.

5. Material amendments to this report / certificate after issue shall be made only in the form of a further document, or a complete new report / certificate.

6. The integrity of the sample(s) and results(s) are dependent on the quality of sampling. The result(s) apply only to the actual sample(s) tested. Some methods may be modified to accommodate transportation and treatment. Sample(s), if drawn for analysis, will not be retained by the NML for more than one month, except with special instruction from customer.

7. NML shall be held harmless from any liability arising out of the use of such test / analysis result(s).

8. Presentation of test / analysis result(s) for detection limit and unit of measurement shall be agreed by NML and customers, normally decided by NML for technical reasons and good practice in analytical measurement.

9. Where relevant, a statement of compliance / non-compliance with requirement and / or specifications shall be presented when requested by customers. The statement shall be appropriate and needed for interpretation and guidance only.

10. This report / certificate shall not be used for advertising and legal proceeding purpose without prior written approval of NML.