

TECHNICAL MEMORANDUM

DATE 6 October 2021

Project No. 19130795-023-TM-Rev1

TO Akzo Nobel Pty Ltd,

CC

FROM Golder Associates Pty Ltd

EMAIL cvanbrink@golder.com.au

AKZO NOBEL SUNSHINE NORTH – AUGUST 2021 BOUNDARY ODOUR MONITORING RESULTS.

Golder Associates Pty Ltd (Golder) was commissioned by AkzoNobel Pty Ltd (AkzoNobel) to conduct an ambient air quality monitoring programme at the AkzoNobel site located at 51 McIntyre Road, Sunshine North (the Site). The aim of this report is to summarise the boundary odour surveys completed as part of the larger ambient air quality monitoring scope outlined in Golder Proposal No. 19130795-014-TM-Rev0, issued on 14 April 2021.

The assessment has been conducted in response to an Amended Clean Up Notice issued to AkzoNobel by the Environment Protection Authority (EPA VIC) issued on 24/12/2020 (CUN No. 90011933).

The following report describes the scope of work, assessment methods, and boundary odour monitoring results for August 2021.

Assessment Location

Each odour assessment was undertaken on foot while walking the entire site perimeter, inside the boundary line fence. On occasion, facility operations or mobile plant being used on the Site may require a minor deviation from the usual boundary assessment route. The boundary odour monitoring route is presented in Figure 1.



Figure 1 Boundary odour monitoring route

Assessment Methodology

Odour intensity assessments are designed to qualify odour emissions from industry and quantify the odour level as a perceived strength. Field based odour monitoring is undertaken once every three days to assess the general amenity of the area.

Assessments were undertaken by Golder staff, who are trained and certified as odour assessors. The staff members participate in annual screening sessions that assess their responsiveness to a reference odour (n-butanol). All staff have been screened within the past 12 months and their Individual Threshold Estimates (ITEs) were within the acceptable range.

The odour assessments were undertaken in accordance with EPA “*Guidance for field odour surveillance*”, Publication 1881, May 2021. Odours detected at site during the monitoring period were assessed for the following parameters:

- Location;
- Intensity (see next Section);
- Character (classified as ‘paint or solvent’, ‘sickly sweet’, ‘acrid or burnt’, or ‘other’);
- Presence (classified as ‘Constant’, ‘Frequent/Repetitive’ or ‘Transient’); and
- local meteorological conditions.

Assessment Criteria

As part of the implementation of the *Environment Protection Act 2017*, which came into effect on 1 July 2021, the Environment Protection Authority, Victoria (EPA Vic), published the draft Guideline for assessing and minimising air pollution in Victoria, Publication 1961, May 2021 (draft guideline). This draft guideline, when finalised, is intended to replace parts of the *State Environment Protection Policy (Air Quality Management)* (SEPP(AQM)). The draft guideline refers to publication 1883, *Guidance for Assessing Odour*, for assessing the impacts of odour, however this document has not yet been released.

Golder has previously used the German Standard VDI 3940:2010 for assessing the impact of odour. This standard has a seven-point odour intensity scale ranging from 0 to 6 (Table 1). Based on Golder's experience, odour intensity levels less than three (or 'Distinct' comparable to "Obvious" in the EPA publication 1881) are less likely to cause annoyance and result in complaints. Table 1 compares the German Standard intensity scale to the EPA publication 1881.

Table 1 Comparison of odour intensity scales

German Standard		EPA pub 1881
Intensity	Description	Description
0	Not detectable	No Odour
1	Very Weak	Subtle
2	Weak	
3	Distinct	Obvious
4	Strong	
5	Very Strong	
6	Extremely Strong	

Results

From the 2nd to 31st of August 2021, 10 boundary odour assessments were undertaken for a total of 81 discrete odour measurements. All boundary odour assessment results are summarized in Appendix A.

Table 2 summarizes all odour intensity measurements recorded as Distinct (i.e., 'Obvious'). Measurements of Distinct odour occurred on 5 of the 10 assessment days and their presence was typically frequent or constant. The character of these Distinct odours include all four types: paint or solvent; sickly sweet; acrid or burnt; and, other.

Table 2 : August 2021 boundary odour monitoring results

Boundary	Location	Monitoring period		Wind Direction	Odour		
		Date	Time		Intensity	Presence	Characteristic
South	Centre	13-08-2021	14:57-16:34	S	Distinct	Frequent	Paint or Solvent
South	West	13-08-2021	14:57-16:34	N	Strong	Frequent	Paint or Solvent

Boundary	Location	Monitoring period		Wind Direction	Odour		
		Date	Time		Intensity	Presence	Characteristic
South	East	14-08-2021	15:20-16:22	W	Distinct	Frequent	Sickly Sweet
East	Centre	20-08-2021	09:55-11:13	NNW	Distinct	Constant	Other: Food (chicken)
South	Centre	20-08-2021	09:55-11:13	nd	Distinct	Frequent	Sickly Sweet
South	Centre	20-08-2021	09:55-11:13	nd	Distinct	Transient	Acrid or Burnt
South	West	20-08-2021	09:55-11:13	N	Very Strong	Constant	Paint or Solvent
South	West	25-08-2021	10:02-11:09	NW	Distinct	Frequent	Paint or Solvent
East	Centre	26-08-2021	10:08-11:01	nd	Distinct	Constant	Acrid or Burnt

nd = not detectable

Important Information Relating to this Report

Your attention is drawn to the document titled - "Important Information Relating to this Report", which is included in APPENDIX B of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.

Golder Associates Pty Ltd



Carl Van Brink
Environmental Scientist



Mark Tulau
Senior Air Quality Specialist

CVB/MDT/cvb

Attachments Appendix A – Boundary Odour Monitoring Results
Appendix B – Important Information Relating to this Report

[https://golderassociates.sharepoint.com/sites/115853/project files/6 deliverables/023-tm- boundary odour monitoring - august 2021/19130795-023-tm-rev1 - bom results - august 2021.docx](https://golderassociates.sharepoint.com/sites/115853/project%20files/6%20deliverables/023-tm-boundary%20odour%20monitoring-august%202021/19130795-023-tm-rev1-bom-results-august-2021.docx)

APPENDIX A

**Boundary Odour Monitoring
Results**

Monitoring period		Boundary	Location	Wind Direction	Wind Speed (Min-Max) (m/s)	Odour		
Date	Time (Start-Finish)					Intensity	Presence	Characteristic
02-08-2021	10:50-11:56	North	East	NW	1.5-3.5	Not Detectable	N/A	N/A
02-08-2021	10:50-11:56	North	Centre	N	1.5-3.5	Not Detectable	N/A	N/A
02-08-2021	10:50-11:56	North	West	W	0.0-2.5	Not Detectable	N/A	N/A
02-08-2021	10:50-11:56	East	Centre	N	0.0-0.2	Not Detectable	N/A	N/A
02-08-2021	10:50-11:56	South	East	NW	0.0-0.5	Not Detectable	N/A	N/A
02-08-2021	10:50-11:56	South	Centre	Calm	0.0-0.0	Very Weak	Constant	Other (Petrochemical/Oily)
02-08-2021	10:50-11:56	South	West	NW	2.5-4.0	Not Detectable	N/A	N/A
02-08-2021	10:50-11:56	West	Centre	NW	2.0-3.0	Very Weak	Frequent	Acrid/Burnt Smell
07-08-2021	11:39-13:10	North	East	NE	0.3-1.0	Weak	Constant	Paint or solvent
07-08-2021	11:39-13:10	North	Centre	SW	1.6-4.4	Not Detectable	N/A	N/A
07-08-2021	11:39-13:10	North	West	NW	0.3-0.9	Not Detectable	N/A	N/A
07-08-2021	11:39-13:10	East	Centre	NE	0.0-0.6	Very Weak	Constant	Sickly Sweet
07-08-2021	11:39-13:10	South	East	EW	0.0-0.4	Very Weak	Transient	Sickly Sweet
07-08-2021	11:39-13:10	South	Centre	W	0.9-2.1	Very Weak	Frequent	Sickly Sweet
07-08-2021	11:39-13:10	South	West	W	0.6-1.7	Very Weak	Constant	Sickly Sweet
07-08-2021	11:39-13:10	West	Centre	SW	0.9-1.7	Not Detectable	N/A	N/A
08-08-2021	12:08-13:33	North	East	Calm	0.0-0.0	Not Detectable	N/A	N/A
08-08-2021	12:08-13:33	North	Centre	Calm	0.0-0.0	Not Detectable	N/A	N/A
08-08-2021	12:08-13:33	North	West	Calm	0.0-0.0	Not Detectable	N/A	N/A

Monitoring period		Boundary	Location	Wind Direction	Wind Speed (Min-Max) (m/s)	Odour		
Date	Time (Start-Finish)					Intensity	Presence	Characteristic
08-08-2021	12:08-13:33	East	Centre	Calm	Calm	Not Detectable	N/A	N/A
08-08-2021	12:08-13:33	South	East	Calm	Calm	Not Detectable	N/A	N/A
08-08-2021	12:08-13:33	South	Centre	W	0.0-1.5	Very Weak	Frequent	Acrid/Burnt Smell
08-08-2021	12:08-13:33	South	West	NW	0.0-1.5	Very Weak	Frequent	Sickly Sweet
08-08-2021	12:08-13:33	West	Centre	SE	0.0-1.0	Very Weak	Transient	Paint or solvent
13-08-2021	14:57-16:34	North	East	S	0.0-0.8	Not Detectable	N/A	N/A
13-08-2021	14:57-16:34	North	Centre	W	0.3-0.8	Not Detectable	N/A	N/A
13-08-2021	14:57-16:34	North	West	NW	0.9-2.5	Not Detectable	N/A	N/A
13-08-2021	14:57-16:34	East	Centre	N	0.0-0.6	Very Weak	Frequent	Sickly Sweet
13-08-2021	14:57-16:34	South	East	NW	0.0-0.6	Weak	Frequent	Acrid/Burnt Smell
13-08-2021	14:57-16:34	South	Centre	S	0.2-1.7	Distinct	Frequent	Paint or solvent
13-08-2021	14:57-16:34	South	West	N	0.0-0.4	Strong	Frequent	Paint or solvent
13-08-2021	14:57-16:34	West	Centre	W	0.0-0.5	Not Detectable	N/A	N/A
14-08-2021	15:20-16:22	North	East	NNW	0.0-0.8	Not Detectable	N/A	N/A
14-08-2021	15:20-16:22	North	Centre	WNW	0.0-0.7	Very Weak	Transient	Paint or solvent
14-08-2021	15:20-16:22	North	West	NNW	0.8-1.3	Not Detectable	N/A	N/A
14-08-2021	15:20-16:22	East	Centre	N	0.5-1.9	Weak	Frequent	Sickly Sweet
14-08-2021	15:20-16:22	South	West	W	0.5-1.0	Distinct	Frequent	Sickly Sweet
14-08-2021	15:20-16:22	South	Centre	W	0.0-0.5	Very Weak	Transient	Sickly Sweet

Monitoring period		Boundary	Location	Wind Direction	Wind Speed (Min-Max) (m/s)	Odour		
Date	Time (Start-Finish)					Intensity	Presence	Characteristic
14-08-2021	15:20-16:22	South	West	N	1.5-2.2	Weak	Frequent	Sickly Sweet
14-08-2021	15:20-16:22	West	Centre	W	0.2-0.8	Not Detectable	N/A	N/A
19-08-2021	09:30-10:32	North	East	N	0.0-0.9	Not Detectable	N/A	N/A
19-08-2021	09:30-10:32	North	Centre	NE	0.0-0.0	Not Detectable	N/A	N/A
19-08-2021	09:30-10:32	North	West	SW	0.0-0.9	Not Detectable	N/A	N/A
19-08-2021	09:30-10:32	East	Centre	NW	0.2-1.9	Weak	Constant	Acrid/Burnt Smell
19-08-2021	09:30-10:32	South	East	E	0.0-1.1	Very Weak	Constant	Acrid/Burnt Smell
19-08-2021	09:30-10:32	South	Centre	W	0.0-0.0	Weak	Frequent	Sickly Sweet
19-08-2021	09:30-10:32	South	West	W	0.0-0.6	Very Weak	Frequent	Paint or solvent
19-08-2021	09:30-10:32	West	Centre	W	0.6-1.9	Not Detectable	N/A	N/A
20-08-2021	09:55-11:13	North	East	NNE	1.0-2.0	Weak	Transient	Acrid/Burnt Smell
20-08-2021	09:55-11:13	North	Centre	N	0.0-1.0	Not Detectable	N/A	N/A
20-08-2021	09:55-11:13	North	West	W	0.0-1.0	Not Detectable	N/A	N/A
20-08-2021	09:55-11:13	East	Centre	NNW	0.5-1.5	Distinct	Constant	Other: Food (chicken)
20-08-2021	09:55-11:13	South	East	E	0.0-1.5	Very Weak	Transient	Acrid/Burnt Smell
20-08-2021	09:55-11:13	South	Centre	Calm	Calm	Distinct	Frequent	Sickly Sweet
20-08-2021	09:55-11:13	South	Centre	Calm	Calm	Distinct	Transient	Acrid/Burnt Smell
20-08-2021	09:55-11:13	South	West	N	0.0-2.5	Vert Strong	Constant	Paint or solvent
20-08-2021	09:55-11:13	West	Centre	NNW	0.5-4.0	Not Detectable	N/A	N/A

Monitoring period		Boundary	Location	Wind Direction	Wind Speed (Min-Max) (m/s)	Odour		
Date	Time (Start-Finish)					Intensity	Presence	Characteristic
25-08-2021	10:02-11:09	North	East	S	0.9-5.6	Not Detectable	N/A	N/A
25-08-2021	10:02-11:09	North	Centre	SW	0.0-1.1	Not Detectable	N/A	N/A
25-08-2021	10:02-11:09	North	West	N	0.0-0.0	Very Weak	Frequent	Sickly Sweet
25-08-2021	10:02-11:09	East	Centre	Varying	0.0-1.4	Not Detectable	N/A	N/A
25-08-2021	10:02-11:09	South	East	NE	0.0-0.9	Not Detectable	N/A	N/A
25-08-2021	10:02-11:09	South	Centre	W	1.3-4.9	Not Detectable	N/A	N/A
25-08-2021	10:02-11:09	South	West	NW	0.3-0.9	Distinct	Frequent	Paint or solvent
25-08-2021	10:02-11:09	West	Centre	S	2.8-4.6	Not Detectable	N/A	N/A
26-08-2021	10:08-11:01	North	East	Calm	Calm	Not Detectable	N/A	N/A
26-08-2021	10:08-11:01	North	Centre	Calm	Calm	Very Weak	Frequent	Paint or solvent
26-08-2021	10:08-11:01	North	West	Calm	Calm	Not Detectable	N/A	N/A
26-08-2021	10:08-11:01	East	Centre	Calm	Calm	Distinct	Constant	Acrid/Burnt Smell
26-08-2021	10:08-11:01	South	East	Calm	Calm	Weak	Frequent	Acrid/Burnt Smell
26-08-2021	10:08-11:01	South	Centre	W	0.5-1.0	Weak	Frequent	Acrid/Burnt Smell
26-08-2021	10:08-11:01	South	West	Calm	Calm	Weak	Frequent	Sickly Sweet
26-08-2021	10:08-11:01	West	Centre	Calm	Calm	Weak	Frequent	Paint or solvent
31-08-2021	11:27-12:39	North	East	NW	0.6-2.9	Not Detectable	N/A	N/A
31-08-2021	11:27-12:39	North	Centre	S, W, SW	0.0-2.1	Not Detectable	N/A	N/A
31-08-2021	11:27-12:39	North	West	WN, N	1.4-2.4	Not Detectable	N/A	N/A

Monitoring period		Boundary	Location	Wind Direction	Wind Speed (Min-Max) (m/s)	Odour		
Date	Time (Start-Finish)					Intensity	Presence	Characteristic
31-08-2021	11:27-12:39	East	Centre	NE	0.3-2.1	Not Detectable	N/A	N/A
31-08-2021	11:27-12:39	South	East	S, SW, W	0.0-0.5	Not Detectable	N/A	N/A
31-08-2021	11:27-12:39	South	Centre	E	1.9-3.3	Very Weak	Frequent	Sickly Sweet
31-08-2021	11:27-12:39	South	West	N, E	0.0-1.9	Weak	Frequent	Paint or solvent
31-08-2021	11:27-12:39	West	Centre	NW	1.8-5.9	Not Detectable	N/A	N/A

APPENDIX B

**Important Information
Relating to this Report**

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder's obligations (including any limits on those obligations) to its Client under the Contract.

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The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

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Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

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