

TECHNICAL MEMORANDUM

DATE 23 March 2022

Reference No. 19130795-048-TM-Rev0

TO Akzo Nobel Pty Ltd

CC

FROM Golder Associates Pty Ltd

EMAIL csmcnaug@golder.com

AKZO NOBEL SUNSHINE NORTH – JANUARY 2022 BOUNDARY AND RESIDENTIAL 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 and residential 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 the Clean Up Notice issued to AkzoNobel by the Environment Protection Authority (EPA VIC) on 25/03/2021 (CUN No. 90011654).

The following report describes the scope of work, assessment methods, and boundary and residential odour monitoring results for January 2022.

ASSESSMENT LOCATION

Each boundary 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.

The residential odour assessment was undertaken when an odour intensity of three or higher was recorded along the north, east or west boundary of the AkoNobel site. Residential odour assessments are conducted parallel and downwind from the site boundary at four evenly spaced locations (where possible) in the residential area. Example routes for residential odour monitoring are presented in Figure 2. Actual monitoring locations will vary based on wind speed and direction.



Figure 1: Boundary odour monitoring route



Figure 2: Residential odour monitoring locations

ASSESSMENT METHODOLOGY

Odour intensity assessments are designed to qualify odour emissions from industry and quantify the odour level as a perceived strength. Field-based boundary odour monitoring is undertaken twice every six days to assess the general amenity of the area. Residential odour monitoring is undertaken at the downwind location only, and only when an odour intensity of three or higher was recorded during the fence line survey.

Odour 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 the 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, but 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 OF BOUNDARY ODOUR MONITORING

From 1 to 31 January 2022, 10 boundary odour assessments were undertaken for a total of 81 discrete odour measurements. All boundary odour assessment results are summarised in Attachment A.

Table 2 summarises all odour intensity measurements recorded as Distinct (i.e., 'Obvious'). Measurements of Distinct odour occurred on 7 of the 10 assessment days and their presence was typically frequent or transient, with two events being constant. The character of these Distinct odours includes all four types: paint or solvent; sickly sweet; acrid or burnt; and other.

Table 2: January 2022 boundary odour monitoring results

Boundary	Location	Monitoring Period		Wind Direction	Odour		
		Date	Time		Intensity	Presence	Characteristic
North	Centre	04/01/2022	10:53-11:50	NE, S, NW	Distinct	Frequent	Sickly Sweet
South	Centre	10/01/2022	10:58-11:56	E	Distinct	Transient	Acrid or Burnt Smell
South	West	10/01/2022	10:58-11:56	nd	Distinct	Transient	Sickly Sweet
South	East	11/01/2022	11:34-12:27	S	Distinct	Constant	Other: Plant/Tree Blooming
West	Centre	11/01/2022	11:34-12:27	SSE	Distinct	Frequent	Chemical or Solvent type paint smell
South	Centre	16/01/2022	11:49-12:33	nd	Distinct	Frequent	Acrid or Burnt Smell
North	Centre	17/01/2022	12:37-13:27	nd	Distinct	Frequent	Chemical or Solvent type paint smell
South	West	22/01/2022	10:53-11:47	nd	Distinct	Transient	Sickly Sweet
South	Centre	29/01/2022	10:13-11:07	nd	Distinct	Frequent	Acrid or Burnt Smell
South	West	29/01/2022	10:13-11:07	NW, E	Distinct	Constant	Chemical or Solvent type paint smell

Note: nd = not detectable

RESULTS OF RESIDENTIAL ODOUR MONITORING

From 1 to 31 January 2022, three residential odour assessments were undertaken on three different days. The first assessment was completed at the north, second, and third at the west side as there was a distinct smell of paint/solvent or sickly sweet detected frequently at the respective boundaries. The results of the residential odour survey are presented in Table 3.

Table 3: January 2022 residential odour monitoring results

Date	Location adjacent to the site boundary	Odour Intensity at transect locations				Odour Character
		Location	Location No.	GPS Coordinate	Odour Intensity	
04/01/2022	North	Cranbourne Avenue	A	-37.768774,144.829414	Weak	Sickly Sweet
			B	-37.768739,144.828917	Very Weak	Sickly Sweet
			C	-37.768564,144.827675	Very Weak	Sickly Sweet
			D	-37.768479,144.826800	Not Detectable	N/A
11/01/2022	West	Melton Avenue	A	-37.768045,144.824005	Not Detectable	N/A
			B	-37.767617,144.823983	Not Detectable	N/A
			C	-37.767141,144.824028	Not Detectable	N/A
			D	-37.766803,144.824119	Not Detectable	N/A
17/01/2022	West	Melton Avenue	A	-37.768055,144.823994	Very Weak	Paint or Solvent
			B	-37.767591,144.823763	Very Weak	Paint or Solvent
			C	-32.267202,144.824029	Not Detectable	N/A
			D	-37.766819,144.824061	Very Weak	Paint or Solvent

IMPORTANT INFORMATION RELATING TO THIS REPORT

Your attention is drawn to the document titled - "Important Information Relating to this Report", which is included in Attachment 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 has under the contract between it and its client.

GOLDER ASSOCIATES PTY LTD



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

[https://golderassociates.sharepoint.com/sites/115853/project files/6 deliverables/048-tm-boundary and residential odour monitoring-january 2022/19130795-048-tm-rev0 - bom results - january 2022.docx](https://golderassociates.sharepoint.com/sites/115853/project%20files/6%20deliverables/048-tm-boundary%20and%20residential%20odour%20monitoring-january%202022/19130795-048-tm-rev0-%20bom%20results-%20january%202022.docx)

ATTACHMENT 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
4/01/2022	10:53-11:50	North	East	S	0.3-0.9	Not Detectable	N/A	N/A
4/01/2022	10:53-11:50	North	Centre	NE, S, NW	0.1-0.9	Distinct	Frequent	Sickly Sweet
4/01/2022	10:53-11:50	North	West	Not Detected	0	Very Weak	Frequent	Sickly Sweet
4/01/2022	10:53-11:50	East	Centre	S	0-0.2	Not Detectable	N/A	N/A
4/01/2022	10:53-11:50	South	East	NE, E	0	Not Detectable	N/A	N/A
4/01/2022	10:53-11:50	South	Centre	NE, E	0.6-0.9	Not Detectable	N/A	N/A
4/01/2022	10:53-11:50	South	West	NNW	0	Weak	Transient	Sickly Sweet
4/01/2022	10:53-11:50	West	Centre	NE	0	Not Detectable	N/A	N/A
5/01/2022	11:09-11:57	North	East	S	0.3-0.5	Not Detectable	N/A	N/A
5/01/2022	11:09-11:57	North	Centre	W	0.4-1.0	Not Detectable	N/A	N/A
5/01/2022	11:09-11:57	North	West	E	0	Very Weak	Transient	Sickly Sweet
5/01/2022	11:09-11:57	East	Centre	S	0.4-0.8	Not Detectable	N/A	N/A
5/01/2022	11:09-11:57	South	East	E	0	Not Detectable	N/A	N/A
5/01/2022	11:09-11:57	South	Centre	W	0	Very Weak	Transient	Acrid or Burnt Smell
5/01/2022	11:09-11:57	South	West	E	0.4-1.1	Very Weak	Transient	Paint or Solvent
5/01/2022	11:09-11:57	West	Centre	NE, S	0.2-0.5	Very Weak	Transient	Paint or Solvent
10/01/2022	10:58-11:56	North	East	NE	0	Not Detectable	N/A	N/A
10/01/2022	10:58-11:56	North	Centre	Not Detected	0	Not Detectable	N/A	N/A
10/01/2022	10:58-11:56	North	West	NE	0.6-1.7	Not Detectable	N/A	N/A
10/01/2022	10:58-11:56	East	Centre	Not Detected	0	Not Detectable	N/A	N/A
10/01/2022	10:58-11:56	South	East	Not Detected	0	Not Detectable	N/A	N/A
10/01/2022	10:58-11:56	South	Centre	E	0	Distinct	Transient	Acrid or Burnt Smell
10/01/2022	10:58-11:56	South	West	Not Detected	0	Distinct	Transient	Sickly Sweet
10/01/2022	10:58-11:56	South	West	E	0	Weak	Transient	Sickly Sweet
11/01/2022	11:34-12:27	North	East	SSW	0-4.7	Not Detectable	N/A	N/A
11/01/2022	11:34-12:27	North	Centre	W, E	0-1.2	Weak	Frequent	Paint or Solvent
11/01/2022	11:34-12:27	North	West	NEE	0-1.2	Very Weak	Transient	Paint or Solvent
11/01/2022	11:34-12:27	East	Centre	S	0-3.1	Not Detectable	N/A	N/A
11/01/2022	11:34-12:27	South	East	S	0-0.1	Distinct	Constant	Other: Plant/Tree Blooming
11/01/2022	11:34-12:27	South	Centre	N	0-5.2	Weak	Constant	Paint or Solvent
11/01/2022	11:34-12:27	South	West	Not Detected	0	Strong	Frequent	Other: Waste from waste bins

Monitoring period		Boundary	Location	Wind Direction	Wind Speed (Min-Max) (m/s)	Odour		
Date	Time (Start-Finish)					Intensity	Presence	Characteristic
11/01/2022	11:34-12:27	West	Centre	SSE	0-6.9	Distinct	Frequent	Paint or Solvent
16/01/2022	11:49-12:33	North	East	SSE	0	Not Detectable	N/A	N/A
16/01/2022	11:49-12:33	North	Centre	W	0	Not Detectable	N/A	N/A
16/01/2022	11:49-12:33	North	West	E	0.5-1.7	Not Detectable	N/A	N/A
16/01/2022	11:49-12:33	East	Centre	Not Detected	0	Not Detectable	N/A	N/A
16/01/2022	11:49-12:33	South	East	Not Detected	0	Not Detectable	N/A	N/A
16/01/2022	11:49-12:33	South	Centre	Not Detected	0	Distinct	Frequent	Acrid or Burnt Smell
16/01/2022	11:49-12:33	South	West	W	0.1-1	Weak	Transient	Sickly Sweet
16/01/2022	11:49-12:33	West	Centre	SW	0.3-0.6	Weak	Transient	Paint or Solvent
17/01/2022	12:37-13:37	North	East	SSE	0-1.9	Very Weak	Frequent	Acrid or Burnt Smell
17/01/2022	12:37-13:37	North	Centre	Not Detected	0	Distinct	Frequent	Paint or Solvent
17/01/2022	12:37-13:37	North	West	Not Detected	0	Very Weak	Frequent	Paint or Solvent
17/01/2022	12:37-13:37	East	Centre	Not Detected	0	Not Detectable	N/A	N/A
17/01/2022	12:37-13:37	South	East	Not Detected	0	Weak	Frequent	Acrid or Burnt Smell
17/01/2022	12:37-13:37	South	Centre	Not Detected	0	Weak	Frequent	Acrid or Burnt Smell
17/01/2022	12:37-13:37	South	West	NW	0-0.7	Strong	Constant	Sickly Sweet
17/01/2022	12:37-13:37	South	West	NW	0-0.7	Strong	Constant	Paint or Solvent
17/01/2022	12:37-13:37	West	Centre	SE	0-2.2	Weak	Frequent	Paint or Solvent
22/01/2022	10:53-11:47	North	East	N	0.2-1.8	Weak	Transient	Other: BBQ Meat
22/01/2022	10:53-11:47	North	Centre	NW	0	Not Detectable	N/A	N/A
22/01/2022	10:53-11:47	North	West	E	0.6-1.3	Not Detectable	N/A	N/A
22/01/2022	10:53-11:47	East	Centre	E	0.2-0.8	Very Weak	Transient	Other: Curry
22/01/2022	10:53-11:47	South	East	E	0.2-0.6	Weak	Frequent	Sickly Sweet
22/01/2022	10:53-11:47	South	Centre	E	0	Weak	Frequent	Acrid or Burnt Smell
22/01/2022	10:53-11:47	South	West	Not Detected	0	Distinct	Transient	Sickly Sweet
22/01/2022	10:53-11:47	West	Centre	NW	0.2-1.9	Not Detectable	N/A	N/A
23/01/2022	11:42-12:30	North	East	Not Detected	0	Not Detectable	N/A	N/A
23/01/2022	11:42-12:30	North	Centre	Not Detected	0	Not Detectable	N/A	N/A
23/01/2022	11:42-12:30	North	West	NEE	0-1.9	Not Detectable	N/A	N/A
23/01/2022	11:42-12:30	East	Centre	Not Detected	0	Not Detectable	N/A	N/A
23/01/2022	11:42-12:30	South	East	NEE	0-1.6	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
23/01/2022	11:42-12:30	South	Centre	SEE	0-2.1	Weak	N/A	Acrid or Burnt Smell
23/01/2022	11:42-12:30	South	West	Not Detected	0	Not Detectable	N/A	N/A
23/01/2022	11:42-12:30	West	Centre	NNE	0-1.9	Not Detectable	N/A	N/A
28/01/2022	9:15-10:12	North	East	NNE	0	Not Detectable	N/A	N/A
28/01/2022	9:15-10:12	North	Centre	NNE	0-0.2	Very Weak	Transient	Acrid or Burnt Smell
28/01/2022	9:15-10:12	North	West	NNE	0.2-1.6	Not Detectable	N/A	N/A
28/01/2022	9:15-10:12	East	Centre	N, E	0-0.4	Very Weak	Transient	Other: BBQ Meat
28/01/2022	9:15-10:12	South	East	N	0-0.6	Not Detectable	N/A	N/A
28/01/2022	9:15-10:12	South	Centre	NE	0.8-1.1	Very Weak	Transient	Acrid or Burnt Smell
28/01/2022	9:15-10:12	South	West	N	0.3-1.9	Weak	Frequent	Sickly Sweet
28/01/2022	9:15-10:12	West	Centre	NNE	0.8-2.6	Not Detectable	N/A	N/A
29/01/2022	10:13-11:07	North	East	S	0-1.4	Not Detectable	N/A	N/A
29/01/2022	10:13-11:07	North	Centre	W, E	0	Weak	Frequent	Paint or Solvent
29/01/2022	10:13-11:07	North	West	Not Detected	0	Not Detectable	N/A	N/A
29/01/2022	10:13-11:07	East	Centre	Not Detected	0	Not Detectable	N/A	N/A
29/01/2022	10:13-11:07	South	East	Not Detected	0	Not Detectable	N/A	N/A
29/01/2022	10:13-11:07	South	Centre	Not Detected	0	Distinct	Frequent	Acrid or Burnt Smell
29/01/2022	10:13-11:07	South	West	NW, E	0-0.1	Distinct	Constant	Paint or Solvent
29/01/2022	10:13-11:07	West	Centre	SEE	0-1.7	Weak	Transient	Paint or Solvent

ATTACHMENT 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.

This Report is provided for use solely by Golder's Client and persons acting on the Client's behalf, such as its professional advisers. Golder is responsible only to its Client for this Report. Golder has no responsibility to any other person who relies or makes decisions based upon this Report or who makes any other use of this Report. Golder accepts no responsibility for any loss or damage suffered by any person other than its Client as a result of any reliance upon any part of this Report, decisions made based upon this Report or any other use of it.

This Report has been prepared in the context of the circumstances and purposes referred to in, or derived from, the Contract and Golder accepts no responsibility for use of the Report, in whole or in part, in any other context or circumstance or for any other purpose.

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.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

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.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification