

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

POLYMER OF LOW CONCERN PUBLIC REPORT

Cellulose, ethyl 2-hydroxyethyl methyl ether

This Self Assessment has been compiled by the applicant and adopted by NICNAS in accordance with the provisions of the Industrial Chemicals (Notification and Assessment) Act 1989 (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), administered by the Department of Health and the Department of the Environment, has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

This Public Report is available for viewing and downloading from the NICNAS website or available on request, free of charge, by contacting NICNAS. For requests and enquiries please contact the NICNAS Administration Coordinator at:

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**Director
NICNAS**

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SUMMARY:

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
SAPLC/172	Akzo Nobel Pty Ltd	Cellulose, ethyl 2-hydroxyethyl methyl ether	No	≤ 80 tonnes per annum	Paint and building product additives

CONCLUSIONS AND REGULATORY OBLIGATIONS**Human Health Risk Assessment**

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

Environmental Risk Assessment

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Health and Safety Recommendations

- No specific engineering controls, work practices or personal protective equipment are required for the safe use of the notified polymer itself. However, these should be selected on the basis of all ingredients in the formulation

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- A copy of the (M)SDS should be easily accessible to employees.
- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (Safe Work Australia, 2015) or relevant State or Territory Code of Practice.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

Emergency Procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

Secondary Notification

This risk assessment is based on the information available at the time of notification. The Director may call for the reassessment of the polymer under secondary notification provisions based on changes in certain circumstances. Under Section 64 of the *Industrial Chemicals (Notification and Assessment) Act (1989)* the notifier, as well as any other importer or manufacturer of the notified polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is listed on the Australian Inventory of Chemical Substances (AICS).

Therefore, the Director of NICNAS must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Section 64(1) of the Act; if
 - the notified polymer is introduced in a chemical form that does not meet the PLC criteria.

or

- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from paint and building product additives, or is likely to change significantly;
 - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
 - the notified polymer has begun to be manufactured in Australia;
 - additional information has become available to the person as to an adverse effect of the notified polymer on occupational health and safety, public health, or the environment.

The Director will then decide whether a reassessment (i.e. a secondary notification and assessment) is required.

(Material) Safety Data Sheet

The (M)SDS of the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Akzo Nobel Pty Ltd (ABN: 59 000 119 424)
51 McIntyre Road
SUNSHINE NORTH, VIC 3020

Exempt Information (Section 75 of the Act)

No details are claimed exempt from publication

2. IDENTITY OF POLYMER

Marketing Name(s)

Structure CEL 8000 M

Chemical Name

Cellulose, ethyl 2-hydroxyethyl methyl ether

CAS Number

71714-29-9

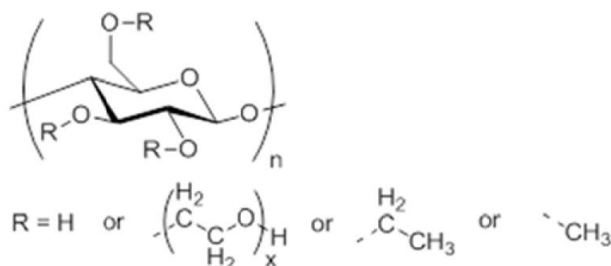
Other Name(s)

MEHEC
Structure CEL 8000

Molecular Formula

$C_2H_6O_2 \cdot x C_2H_6O \cdot x CH_4O \cdot x$ Unspecified

Structural Formula



Molecular Weight

Number Average Molecular Weight (Mn)	332,000 Da
Weight Average Molecular Weight (Mw)	1,543,000 Da
Polydispersity Index (Mw/Mn)	4.6
% of Low MW Species < 1000 Da	0.4%
% of Low MW Species < 500 Da	< 0.4%

Polymer Constituents

<i>Chemical Name</i>	<i>CAS No.</i>	<i>Weight % starting</i>	<i>Weight % residual</i>
Ethane, chloro-	75-00-3	3.4	< 0.0001%
Oxirane	75-21-8	38	< 0.0001%
Methane, chloro-	74-87-3	2.5	< 0.0001%
Natural cellulose	not assigned	56	

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</i>
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
Stable Under Normal Conditions of Use	Yes
Not Water Absorbing	Yes
Not a Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa	Off-white powder
Melting Point/Glass Transition Temp	Not determined (decomposes at above ~180 °C)
Density	1,300-1,400 kg/m ³ at 20 °C
Water Solubility	Completely soluble
Dissociation Constant	The notified polymer does not contain any functional groups that are expected to dissociate in water.
Particle Size	< 100 µm < 25% < 10 µm < 1%
Reactivity	Stable under normal environmental conditions.
Degradation Products	None under normal conditions of use.

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Tonnes	20	35	50	65	80

Use

The notified polymer will be imported in 20 kg polyethylene plastic bags and it will be transferred to mixing vessels for reformulation into paint and building products containing the notified polymer at < 1% concentration (normal dosage is 0.2 - 0.7% calculated on the total weight.). The end use paint products will be used by workers and the public and may be applied by brush, roller and spray.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were available. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

The particle size of the notified polymer indicates that a small portion (< 1%) will be respirable (< 10 µm). The notified polymer is water soluble and therefore if inhaled at low levels is likely to be cleared from the upper respiratory tract readily through mucociliary action. Small proportions of the notified polymer may reach the lower respiratory tract, but it should still be readily cleared from the lungs unless high levels are inhaled. When high concentrations of the notified polymer are inhaled, it is likely to be cleared from the lungs, but this may be slower and temporary respiratory impairment is possible. The possible use of dust masks and local exhaust ventilation when handling the powdered notified polymer by reformulation workers should reduce inhalation exposure levels and hence lower the risk of temporary lung overloading.

7. ENVIRONMENTAL RISK ASSESSMENT

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will not be manufactured in Australia. Therefore, releases of the notified polymer to the environment are not expected from this activity. Accidental spills of notified polymer during import, transport or storage are expected to be adsorbed onto a suitable material and collected for disposal in accordance with local regulations. The notified polymer may enter wastewater streams < 1% of the total import volume during reformulation processes to produce paints and building additives.

ENVIRONMENTAL FATE

The notified polymer is water soluble, expected to be hydrolytically stable and not expected to be readily biodegradable. On the basis of water solubility, the notified polymer is likely to be mobile in soils, and should work its way into the grass root zone and below. The notified polymer should not hydrolyse (due to the lack of suitable functionality) but is expected to slowly degrade into oxides of carbon and water. The notified polymer's high molecular weight and high water solubility will preclude absorption across biological membranes and thus it is unlikely to bioaccumulate.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

7.3. Environmental Risk Assessment

Based on the proposed use pattern, the release of the notified polymer to the aquatic environment is expected to be low and dispersed. Dilution in receiving waters should reduce environmental concentrations to very low levels. Slow biotic processes are expected to eventually degrade the notified polymer.

Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unacceptable risk to the environment.