

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Melflux® BF 11 F

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of the Environment and Energy.

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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Table of Contents

SUMMARY	2
CONCLUSIONS AND REGULATORY OBLIGATIONS.....	2
ASSESSMENT DETAILS.....	4
1. APPLICANT AND NOTIFICATION DETAILS.....	4
2. IDENTITY OF POLYMER	4
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES.....	4
5. INTRODUCTION AND USE INFORMATION	5
6. HUMAN HEALTH RISK ASSESSMENT.....	5
7. ENVIRONMENTAL RISK ASSESSMENT	5

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
PLC/1436	BASF Australia Ltd	Polymer in Melflux® BF 11 F	No	< 70 tonnes per annum	Mortar additive

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

- In the interest of occupational health and safety, the following precautions should be observed for use of the notified polymer in powder form :
 - The level of atmospheric nuisance dust should be maintained as low as possible. The Safe Work Australia exposure standard for atmospheric dust is 10 mg/m³.

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

- A copy of the SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System of 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 mortal additive, 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.

Safety Data Sheet

The SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

BASF Australia Ltd (ABN: 62 008 437 867)
Level 12, 28 Freshwater Place
SOUTHBANK VIC 3006

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other names, CAS number, molecular and structural formulae, molecular weight, spectral data, purity, use details, polymer constituents, residual monomers/impurities and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

Melflux® BF 11 F (product containing the notified polymer at < 40% concentration)

Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 Da

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*	Yellow-brown powder
Melting Point/Glass Transition Temp	Not determined
Density [#]	~1,110 kg/m ³
Water Solubility [#]	> 560 g/L based on observations
Particle Size*	Volume weighted mean = 64 µm Inhalable fraction (< 100 µm) = ~80% Respirable fraction (< 10µm) = ~12%
Reactivity	Hydrolysis in alkaline conditions to form polymer salt [^]
Degradation Products	Ethylene glycol [^]
* Properties of Melflux® BF 11 F (product containing the notified polymer at < 40% concentration)	
# Property of the originally produced aqueous solution containing the notified polymer at ~51% concentration	
^ Intentional reactions within cement during end use	

5. INTRODUCTION AND USE INFORMATION

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

Year	1	2	3	4	5
Tonnes	< 10	< 20	< 30	< 50	< 70

Use

The notified polymer will be used as a mortar additive.

The notified polymer will not be manufactured in Australia, and will be imported as a component in sales product Melflux® BF 11 F in 15 kg paper bags. This product will be reformulated with cementitious binders and aggregates to produce a dry mortar mix containing the notified polymer at $\leq 0.5\%$ concentration. This dry mortar mix will be re-packaged using automated processes into 20 kg bags or 1 tonne super-sacks, and distributed by road to various industrial end-users in Australia.

At end use sites, the dry mortar mix containing the notified polymer will be transferred into the mortar mixer where it will be mixed with water and other ingredients to produce fresh mortar containing $\leq 0.25\%$ notified polymer. Finished fresh mortar is then poured into place or troweled for subsequent manual finishing. Mortar may also be applied using high pressure shotcrete systems.

The mortar containing the notified polymer is intended for industrial-use only, and will not be available for public use.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed 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.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

The particle size of the product containing the notified polymer indicates that a portion of the notified polymer may be in respirable range ($< 10 \mu\text{m}$). 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 large quantities of the notified polymer are inhaled, it is likely to be cleared from the lungs, but this may be slow and temporary respiratory impairment is possible. The expected use of respiratory protection and automated reformulation processes, and the presence of adequate general or local ventilations when handling the powdered product by workers should reduce inhalation exposure levels and hence lower the risk of temporary lung overloading.

7. ENVIRONMENTAL RISK ASSESSMENT

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

The notified polymer will be imported in solid form as a component in cement-based construction materials to be reformulated into finished cement for construction and engineering applications. During reformulation, the product containing notified polymer will be transferred into an additive silo

and dry-mixed with other cementing additives (binders and aggregates) in manually operated powder mixers, then packaged within an automated system. Release of the notified polymer to the environment during import, reformulation, storage, and transport is expected to be limited to accidental spills or leaks and residue in import packaging and from cleaning of equipment (estimated to be $\leq 0.5\%$ by the notifier, or up to 350 kg). Spills or accidental release of the products containing the notified polymer are expected to be collected and disposed of to landfill in accordance with local government regulations.

The notified polymer will be used as a component for cement in construction and engineering applications. Once cured, the notified polymer will be irreversibly bound to the cement matrix and will share the fate of the cement, which is ultimately expected to be disposed of to landfill in accordance with local government regulations. It was estimated by the notifier that $\leq 0.5\%$, or up to 350 kg of the notified polymer will remain in empty packaging as container residue. Empty packaging will be disposed of to landfill in accordance with local government regulations.

Once cured, the notified polymer will share the fate of the cement into which it is bound, and is not expected to be bioavailable nor mobile. The notified polymer is not expected to be bioaccumulative based on the high molecular weight and the use pattern of the notified polymer being trapped in concrete solids after application. In landfill, leaching of the notified polymer is not expected given it is trapped in the concrete matrix. With time, it will be degraded via abiotic or biotic pathways into water and oxides of carbon. Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.