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8 August 2003

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION
AND ASSESSMENT SCHEME**

FULL PUBLIC REPORT

Polymer in EC 9355A, EC 9368A, EC 9378A

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**Director
Chemicals Notification and Assessment**

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PLC/353

FULL PUBLIC REPORT**Polymer in EC 9355A, EC 9368A, EC 9378A****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)
ONDEO Nalco Australia Pty Ltd
2 Anderson Street
BANKSMEDOW NSW 2019

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:

- Chemical identity

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
An Early Introduction Permit (No. 237) was issued on 14 February 2003 for the notified polymer.

NOTIFICATION IN OTHER COUNTRIES
Notified in the US under polymer exemption rules.

2. IDENTITY OF CHEMICAL

OTHER NAME(S)
Polymer in EC 9355A, EC 9368A, EC 9378A

MARKETING NAME(S)
EC 9355A, EC 9368A, EC 9378A

3. COMPOSITION**PLC CRITERIA JUSTIFICATION**

Molecular Weight	The notified polymer satisfies the molecular weight criteria
Reactive Functional Groups	The notified chemical has no groups of high or moderate concern
Charge Density	The notified polymer has low charge density.
Elemental Criteria	The notified polymer contains only approved elements.
Degradability	The notified polymer is not biodegradable.
Water Absorbing	The notified polymer is not a water-absorbing polymer.
Residual Monomers	All residual monomers are below the relevant cut-off.
Hazard Category	The notified polymer is not classified as a hazardous substance.

The notified polymer meets the PLC criteria.

4. 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>
<i>Tonnes</i>	2000-3000	0	0	0	0

USE

The notified polymer is in a liquid latex dispersion intended for exclusive use overseas to block unwanted water streams in offshore oil-bearing sandstone formations. The notified polymer is used in the form of the products EC 9355A, EC 9368A, EC 9378A which contain 30-33% of the notified polymer.

6. PHYSICAL AND CHEMICAL PROPERTIES

The notified polymer is manufactured as an aliphatic hydrocarbon dispersion. The physicochemical properties are largely due to the solution rather than the polymer itself.

Appearance at 20°C and 101.3 kPa

The latex solution containing the notified polymer is colourless translucent, low viscosity liquid.

Melting Point/Glass Transition Temp

N/A

Density

1039 kg/m³ at 15.6°C (product containing the notified polymer)

Water Solubility

Insoluble. Less than 1% of an analogue highly cross-linked polymer was solubilized when "inverted" using standard techniques with water containing NaN₃ followed by GLC analysis.

Particle Size

Not applicable as the notified polymer is dispersed with surfactants in hydrocarbon to form a latex emulsion product.

Degradation Products

No degradation products expected

**Loss of monomers, other reactants, additives
impurities**

None expected.

The polymer contains amide linkages that would be expected to hydrolyse under forcing acid or basic conditions only. Due to its expected very low water solubility it should associate with the octanol phase and with the organic matter of soils and sediments. As a salt of a very strong acid, it will remain dissociated over the environmental pH range of 4-9.

7. HUMAN HEALTH IMPLICATIONS

7.1 Toxicology

9.2.1. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. No human health effects attributable to the notified polymer are expected.

7.2 Occupational Health

7.2.1 Occupational Exposure

- The polymer is manufactured from constituent monomers within a reaction vessel. Worker exposure during the manufacture of the polymer is therefore unlikely.
- Workers responsible for the sampling and quality control testing of sampled 30-33% polymer emulsion may be exposed to the notified polymer during these activities.
- Following manufacture, the polymer emulsion is pumped directly into a 20 000 L stainless steel isotainer for overseas shipment. Workers involved this transfer may be exposed to the latex emulsion containing 30-33% notified polymer during the handling and connection/disconnection of hoses and pumps.
- Waste containing the notified polymer is generated during reactor boilout and associated rinsing activities. Workers involved in the rinsing of the reaction vessel and related plant and equipment may be exposed to the notified polymer in the rinsate.
- Exposure to transport workers and waterside workers responsible for movement of the isotainer from the manufacturing site to the loading for overseas export are not expected to be exposed to the emulsion containing the notified polymer except in the unlikely event of an accident involving sufficient force to compromise the integrity of the isotainer.

7.2.2 Exposure Assessment

Exposure to the notified polymer during manufacture is not anticipated as component monomers are polymerised within an enclosed reaction vessel and mixed with the hydrocarbon/emulsion phases to form the final product.

Dermal exposure to the 30-33% solution of the notified polymer may occur during transfer of the final latex emulsion from the reaction vessel to the 20 000 L isotainer, in the event of leaking hoses and fittings however such occurrences are considered unlikely. Workers directly involved in the connection and disconnection of hoses used in the transfer may be exposed to the notified chemical by unexpected drips and splashes of residual product from hoses and cam-lock fittings or similar. Plant operators wear goggles, gloves and protective clothing.

Workers involved in the reactor boilout and associated rinsing will be exposed to the notified polymer in rinsate generated. The reactor vessel (10 000 L) is filled with water as part of this rinsing process and therefore the rinsate solution will only contain the notified polymer at concentrations orders of magnitude below that present in the latex product.

The notified polymer will be used in of-shore applications only. Worker exposure to small amounts of notified polymer may occur during the addition of the polymer to oil wells.

7.3 Public Health

7.3.1 Public Exposure

- The notified polymer is manufactured in Australia and transported overseas for use in the underwater water-blocking of oil-bearing sandstone formations. There will be no exposure of the public to the notified polymer or the products containing it.

7.3.2 Exposure Assessment

The notified polymer is intended only for use in overseas offshore underwater applications and as a result there is no potential public exposure.

8. ENVIRONMENTAL IMPLICATIONS

8.1 Ecotoxicology

8.1.1 Ecotoxicological Investigations

The following toxicological studies for the notified polymer, Nalco 7877, a product which contains a linear analogue polymer formed from the two major monomers plus other constituents, and PO117, which is 100% of the linear analogue copolymer, were submitted.

For the notified polymer (EC9368A)

The notified polymer is highly crosslinked with low water solubility.

Algal growth inhibition test

TEST SUBSTANCE	EC9368A
METHOD	SOP E209 based on ISO draft method (1991). Water Quality Marine algal growth inhibition test with <i>Skeletonema costatum</i> and <i>Phaeodactylum tricornutum</i> . (ISO/DIS 10253) – static
Species	<i>Skeletonema costatum</i>
Exposure Period	72 hours
Concentration Range	0, 126, 250, 500, 1000 and 2000 mg/L
Nominal	
Remarks – Method	Seawater was used to prepare the test solution and the culture medium.
	A 1000 mg/L stock solution of the test substance was prepared. The test concentrations were prepared by combining measured quantities of the stock solution with culture medium and mixing for 20 hours to obtain an opaque homogeneous stable dispersion. No insoluble material was observed in any of the concentrations. The concentration of the test concentrations was not measured during the study.
	The reference substance, 3,5-dichlorophenol, was used at a concentration of 1.5 mg/L to confirm the test organism's sensitivity.

RESULTS

Biomass		Growth	
E_bC_{50}	NOEC	E_rC_{50}	NOEC
mg/L dispersion at 72 h	mg/L dispersion at 72 h	mg/L dispersion at 72 h	mg/L dispersion at 72 h
351	<126	1224	<250

Remarks - Results

At the start of the study the pH was 8.0 in all concentrations, while at the end of the study it ranged from 7.9 to 8.8. This variation is acceptable. The cell density in the control during the study increased by a factor of 75.

At the test concentration 2000 mg/L dispersion, there was zero algal growth (ie 100% inhibition).

The reference substance test indicated a 24 % inhibition of growth rate, which indicated there was an acceptable level of sensitivity (ie it was in the range 20-80%).

The growth inhibition was calculated using both the biomass integral (ie the area under the growth curve) and the growth rate method. The EC_{50} was estimated by either a linear logarithm or logarithm-probit plot of concentration v. percentage growth inhibition.

The preliminary studies returned variable results. It is presumed that this

was due to uneven distribution of the test substance. Therefore in the final study the dispersion was stirred overnight rather than a short period as in the preliminary study.

CONCLUSION

The test substance was of low toxicity to algae..

TEST FACILITY

Chemex Environmental International Limited (2002a)

For Nalco 7877 (also known as C82A3 and ASP820) which are products containing the linear analogue polymer.

No information has been provided regarding their water solubility, though from the MSDS provided, Nalco 7877 contains 20-30 wt% aliphatic hydrocarbon.

Acute toxicity to fish

TEST SUBSTANCE

C82A3

METHOD

SOP E212 based on OECD TG 203 Fish, Acute Toxicity Test – semi-static.

Species

Turbot (*Scophthalmus maximus*)

Exposure Period

96 hours

Remarks – Method

Standardised artificial seawater with a salinity of 32-33 g/L, was used in for the study.

A 1000 mg/L stock test solution was prepared using seawater. It was shaken vigorously and then left to stand for 1 hour. The resultant solution was cloudy white with undissolved material present. For each test concentration an measured amount of the stock solution was added to 12 litres of seawater and then mixed for 20-24 hours after which the solution was allowed to settle and separate. The supernatant liquid was used for the test.

The pH, dissolved oxygen and temperature were measured at time 0, 24, 48, 72 and 96 hours and a photoperiod of 16 light/8 hours dark was maintained. The test concentrations and control were replaced at 48 hours.

The test concentrations were prepared as water accommodated fractions (WAF) and there was no determination of the actual concentration of the test solutions.

RESULTS

<i>Concentration mg/L WAF</i> <i>Nominal</i>	<i>Number of Fish</i>	<i>Mortality %</i>				
		<i>0 h</i>	<i>24 h</i>	<i>48 h</i>	<i>72 h</i>	<i>96 h</i>
0	7	0	0	0	0	0
100	7	0	0	0	0	0
180	7	0	0	0	100	100
320	7	0	100	100	100	100
560	7	0	100	100	100	100
1000	7	0	100	100	100	100

LC50

134 mg/L WAF at 96 hours.

NOEC (or LOEC)

100 mg/L WAF at 96 hours.

Remarks – Results

The pH ranged from 7.7-8.3 during the study, while dissolved oxygen ranged 67-100% (ASV) and temperature 14.0-15.5°C. These variations are acceptable.

No confidence limits could be calculated. As can be seen from the results,

in the concentrations of 320-1000 mg/L WAF there was 100% mortality within 24 hours and at 180 mg/L WAF after 72 hours.

ToxCalc version 5. Comprehensive Toxicity Data analysis and database Software, was used to estimate the results.

As no analysis of the solutions were done, the reason for the increased toxicity with increasing WAF is unclear, but it may relate to increasing residual undissolved material in the subnatant as no filtration was carried.

CONCLUSION

Due to the increasing toxicity with increasing WAF and the lack of measured concentrations the results of this test are inconclusive with regard to the toxicity of the test substance.

TEST FACILITY

Chemex International plc (2001)

Algal growth inhibition test

TEST SUBSTANCE

C82A3

METHOD

SOP E209 based on ISO draft method (1991). Water Quality Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*. (ISO/DIS 10253) – static

Species

Skeletonema costatum

Exposure Period

72 hours

Concentration Range

0, 1.3, 2.5, 5.0, 10.0 and 20.0 mg/L

Nominal

Remarks - Method

Seawater was used to prepare the test solution and the culture medium.

A 1000 mg/L stock solution of the test substance was prepared, which appeared white and cloudy. The test concentrations were prepared by combining measured quantities of the stock solution with culture medium and mixing for 20-24 hours to obtain a homogeneous dispersion which was allowed to settle and separate for 4 hours. The aqueous phase with no undissolved material was siphoned off and used in the study. The actual concentration of the test concentrations was not measured during the study.

The pH was measured at the start and end of the study.

The reference substance, 3,5-dichlorophenol, was used at a concentration of 1.5 mg/L to confirm the test organism's sensitivity.

The test concentrations were prepared as water accommodated fractions (WAF) and there was no determination of the actual concentration of the test solutions.

RESULTS

<i>Biomass</i>		<i>Growth</i>	
<i>E_bC₅₀</i> mg/L WAF at 72 h	<i>NOEC</i> mg/L WAF at 72 h	<i>E_rC₅₀</i> mg/L WAF at 72 h	<i>NOEC</i> mg/L WAF at 72 h
1.9	<1.3	4.3	<1.3

Remarks - Results

The pH ranged from 7.9-8.8. This variation was acceptable. The cell density in the control during the study increased by a factor of 100.

In the reference substance test there was a 44 % inhibition of growth rate, which indicated there was an acceptable level of sensitivity (ie it was in

the range 20-80%).

At lower concentrations (1.3-5.0 mg/L) inhibition was lower after 72 than at 48 hours, indicating some recovery.

As above the growth inhibition was calculated using both the biomass integral (ie the area under the growth curve) and the growth rate method. The EC₅₀ was estimated by either a linear logarithm or logarithm-probit plot of concentration verses percentage growth inhibition.

While the product is clearly far more toxic to algae than the notified polymer, the reason for this is unknown. This may be due to other constituents in the product.

CONCLUSION

Due to the use of WAF and the lack of measured concentrations the results of this test are inconclusive with regard to the toxicity of the test substance.

TEST FACILITY

Chemex Environmental International Limited (2002c)

Sediment Phase Toxicity

TEST SUBSTANCE

ASP-820

METHOD

Static test based on Paris Commission Guideline. MAFF/ERT Harmonised Protocol. A sediment bioassay using an amphipod *Corophium sp.*

Species

Corophium volutator

Exposure Period

10 days

Concentration Range

0, 1000, 1778.3, 3162.3, 5623.4 and 10000 mg/kg (expressed as dry weight of sediment together)

Nominal

Remarks – Method

Natural sediment was collected from the area in which the amphipods were collected (North West coast Norway).

Artificial seawater with a salinity of 34.8 g/L was used. Weighed amounts of the test substance were added to 10 g of dry sediment, which was then added to the test vessel and mixed in 100 mL of seawater.

Twenty organisms were used per test vessel. The artificial seawater overlying the sediment was maintained at a constant volume with the addition of purified water. The seawater was aerated constantly and the dissolved oxygen, pH and temperature were measured during the study. Abnormal behaviour and mortality observations were taken throughout the study period. Three replicates were done for each treatment and five for the control.

Temperature, pH and dissolved oxygen were measured on Day 0, 1, 4, 7 and 10.

RESULTS

Remarks - Results

10 day LC₅₀ = 4966.4 mg/kg dry weight of sediment.

Dissolved oxygen readings ranged from 88-100% ASV, pH ranged from 7.63-8.07 and temperature ranged from 14-16°C. These variations are acceptable.

A probit analysis computer program, National Swedish Environmental Protection Agency, was used to determine the LC₅₀.

CONCLUSION

According to Mensink, (1995) the test substance is very slightly toxic to the amphipod *Corophium volutator*.

For P0117 – the 100% linear copolymer present in Nalco 7877.

It should be noted that this polymer is linear and as such is more water soluble than the notified polymer.

Acute toxicity to aquatic invertebrates

TEST SUBSTANCE

P0117

METHOD

SOP E207 based on ISO TC147/SC5/WG2 protocol by Thompson (1990). Water Quality. Determination of acute lethal toxicity to marine copepods (Copepoda, Crustacea).

*Species**Acartia tonsa**Exposure Period*

48 hours

Remarks - Method

Filtered, oxygen saturated seawater was used in the study

A 1000 mg/L stock test solution was prepared using the seawater. It was shaken vigorously and then left to stand for 1 hour. The resultant solution was clear. Test concentrations were prepared by the addition to seawater of measured amounts of the stock solution.

The tests were done in quadruplicate in 50 mL crystallising dishes, each with 5 copepods.

Temperature, pH, dissolved oxygen and salinity were measured at the start and end of the study in the control and in the lowest concentration causing 100%.

The reference substance, 3,5-dichlorophenol, was used at a concentration of 1 mg/L to confirm the test organism's sensitivity.

There was no determination of the actual concentration of the test solutions, but as all the polymer was dissolved these may be assumed as being close to nominal.

RESULTS

Concentration mg/L <i>Nominal</i>	Number of <i>D. magna</i>	% mortality	
		24 h	48 h
0	20	0	0
125	20	0	20
250	20	0	30
500	20	10	45
1000	20	15	100
2000	20	20	100
3,5-dichlorophenol	20	20	75

LC50

400 mg/L nominal at 48 hours (95% C.L 315-511 mg/L)

NOEC (or LOEC)

<125 mg/L nominal at 48 hours

Remarks - Results

ToxCalc version 5. Comprehensive Toxicity Data analysis and database Software, was used to estimate the results.

Temperature stayed at 20°C, pH ranged from 7.6-7.9, dissolved oxygen ranged from 99-103% ASV and the salinity ranged from 35-37%. These variations are acceptable.

There was 75% mortality in the reference substance indicating an acceptable level of sensitivity (ie 48 hour mortality range 20-80%).

CONCLUSION

The test substance is not considered harmful to aquatic life.

TEST FACILITY

Chemex Environmental International Limited (2002b)

Algal growth inhibition test

TEST SUBSTANCE

P0117

METHOD

SOP E209 based on ISO draft method (1991). Water Quality Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*. (ISO/DIS 10253) – static

*Species**Skeletonema costatum**Exposure Period*

72 hours

Concentration Range

0, 63, 125, 250, 500 and 1000 mg/L

Nominal

Remarks - Method

Seawater was used to prepare the test solution and the culture medium.

A 1000 mg/L stock solution of the test substance was prepared, which appeared a clear and colourless with undissolved material. The test concentrations were prepared by combining measured quantities of the stock solution with culture medium and mixing for 20 hour and then allowed to settle for 4 hours. The aqueous phase containing no undissolved material was drawn off and used for the test. The actual concentration of the test concentrations was not measured during the study.

At the start and end of the study pH measurements were taken.

The reference substance, 3,5-dichlorophenol, was used at a concentration of 1.5 mg/L to confirm the test organism's sensitivity.

The test concentrations were prepared as water accommodated fractions (WAF) and there was no determination of the actual concentration of the test solutions.

RESULTS

<i>Biomass</i>		<i>Growth</i>	
<i>E_bC₅₀</i> <i>mg/L WAF at 72 h</i>	<i>NOEC</i> <i>mg/L WAF at 72 h</i>	<i>E_rC₅₀</i> <i>mg/L WAF at 72 h</i>	<i>NOEC</i> <i>mg/L WAF at 72 h</i>
129	<63	172	<63

Remarks - Results

The pH ranged from 7.8-8.9, which is acceptable.

In reference substance test indicated there was a 46% inhibition of growth rate, which indicated there was an acceptable level of sensitivity (ie it was in the range 20-80%).

At lower concentrations (63 and 125 mg/L WAF) inhibition was lower after 72 than at 48 hours, indicating some recovery.

As above the growth inhibition was calculated using both the biomass integral (ie the area under the growth curve) and the growth rate method. The EC₅₀ was estimated by either a linear logarithm or logarithm-probit plot of concentration verses percentage growth inhibition.

CONCLUSION

Due to the use of WAF and the lack of measured concentrations the results of this test are inconclusive with regard to the toxicity of the test substance.

8.2 Environmental Contamination

8.2.1 Environmental Exposure

Release

The notified polymer will be manufactured in Australia but will be used offshore outside Australia. All of it will be exported, therefore the only releases will be during manufacture, storage and transport. It will be manufactured in two locations, Botany, New South Wales, and Kwinana, Western Australia in 10 tonne batches. At both sites release would be due to process equipment cleaning and spills. Once the latex mixture has reached specification, it is allowed to cool and then pumped to storage tanks. During and after this pumpout, some of the mixture may be spilt. This material will be collected and recycled if possible, otherwise it will be absorbed by sand which will be placed into a sealable container and stored for disposal by a licensed waste contractor to landfill, or it will enter bunding drains and intercept pits that will take the material to the on-site treatment plants. Very small amounts of the notified polymer would be released due to spills.

The process equipment will under go reactor boilout as required (either after every batch or every third batch). This entails the filling of the empty reactor with a water/sodium hydroxide solution, heating it to 75-80°C overnight, allowing it to cool and then releasing the solution to the on-site effluent treatment plants. The pump hoses will also be flushed of the latex mixture, with the resultant washwater going to the on-site treatment plants. It is estimated that up to 20 L of final mixture will remain in the reactor and pump lines at the time of cleaning, thus the amount of notified polymer in the resultant effluent would be minor.

At the Botany site, all effluent is treated in the on-site effluent plant to bring it into line with the Sydney Water License Agreement Limits and then released to sewer. The Malabar Sewage Treatment Plant will handle this effluent, where it will undergo primary treatment (ie. Biosolids removal) and then be released by ocean outfall. Due to low water solubility and the presence of anionic groups, it is likely that the notified polymer will adsorb to the biosolids. The biosolids will be dried and then go to landfill.

At the Kwinana site, all effluents go to intercept pits, then to a 40 000 L effluent holding tank where it undergoes pH adjustment and solids treatment (if necessary). The effluent is then spray irrigated onto the site's gardens and lawns, under a Western Australia EPA license. Any runoff on the site is caught and returned to the intercept pit.

Fate

The notified polymer is expected to be insoluble in water and as such should not be mobile in either aquatic or terrestrial compartments. As a consequence of its low expected water solubility, the notified polymer will associate with soil and sediment and slowly degraded through biological and abiotic processes to water, sodium and oxides of carbon, nitrogen and sulphur.

The notified polymer has a very high molecular weight and very limited release to the aquatic compartment suggesting that its potential for bioaccumulation is low.

8.2.2 Effects Assessment

The single ecotoxicological study submitted for the notified polymer indicates that it would not be harmful to aquatic life. Data has also been provided for an analogue polymer and products containing it, but care needs to be taken as the exact nature or water solubility are not clear. Tests were generally conducted on water accommodated fractions (WAF) and while toxicity was generally low (<100 mg/L WAF), there appears to be higher toxicity with increasing WAF. In no case were concentrations measured, and in one case toxicity to algae for the product Nalco 7877 was very much higher for unclear reasons.

Under the Globally Harmonised System of Classification and Labelling of Chemicals the test substance would not require labelling, ie would not be considered harmful to aquatic life

9. RISK ASSESSMENT

9.1. Environment

The notified polymer will be manufactured but not used in Australia, thus based on limited environmental exposure resulting from its manufacture, the likely risk to the environment is expected to be low.

9.2 Occupational health and safety

The OHS risk presented by the notified polymer is expected to be low due to its low toxicity and low potential for exposure.

9.3 Public health

As there will be no exposure of the public to the notified polymer or products containing the notified polymer, the risk to the public from exposure to the notified polymer is negligible.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.2. Environmental risk assessment

The polymer is not considered to pose a risk to the environment based on its reported manufacture pattern and total export.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is low Concern to occupational health and safety under the conditions of the occupational settings described.

10.3.2. Public health

There is no concern to public health.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

12. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- 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 MSDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

- The following control measures should be implemented by the manufacturer to minimise environmental exposure during manufacture of the notified polymer:
 - regular maintenance of bunding, drains, intercept pits and effluent treatment plants.
 - Handle only in sealed (eg cemented) areas which have good bunding and no access to storm drains or watercourses.

Disposal

- The notified polymer should be disposed of by release to landfill and incineration.
- If potentially being released to sewer in effluent, then there should be some pre-treatment to encourage removal in sludge and/or passing through a sand filter or similar filter to allow removal by adsorption.

Emergency procedures

- Spills/release of the notified polymer should be handled by containment, and adsorption with material such as sand. Contaminated material (including sand) should then be collected, placed into sealable labelled container and disposed of to landfill. Do not allow to enter drains or watercourses,.

Secondary notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 64(1) of the Act; if
 - the notified polymer is introduced in a chemical form that does not meet the PLC criteria.
 - local use is proposed. Due to the nature of the likely use, ie blocking unwanted water streams in offshore oil-bearing sandstone formations, this should be accompanied by toxicity data for fish and aquatic invertebrates for the notified polymer.

or

- (2) Under subsection 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

13. BIBLIOGRAPHY

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