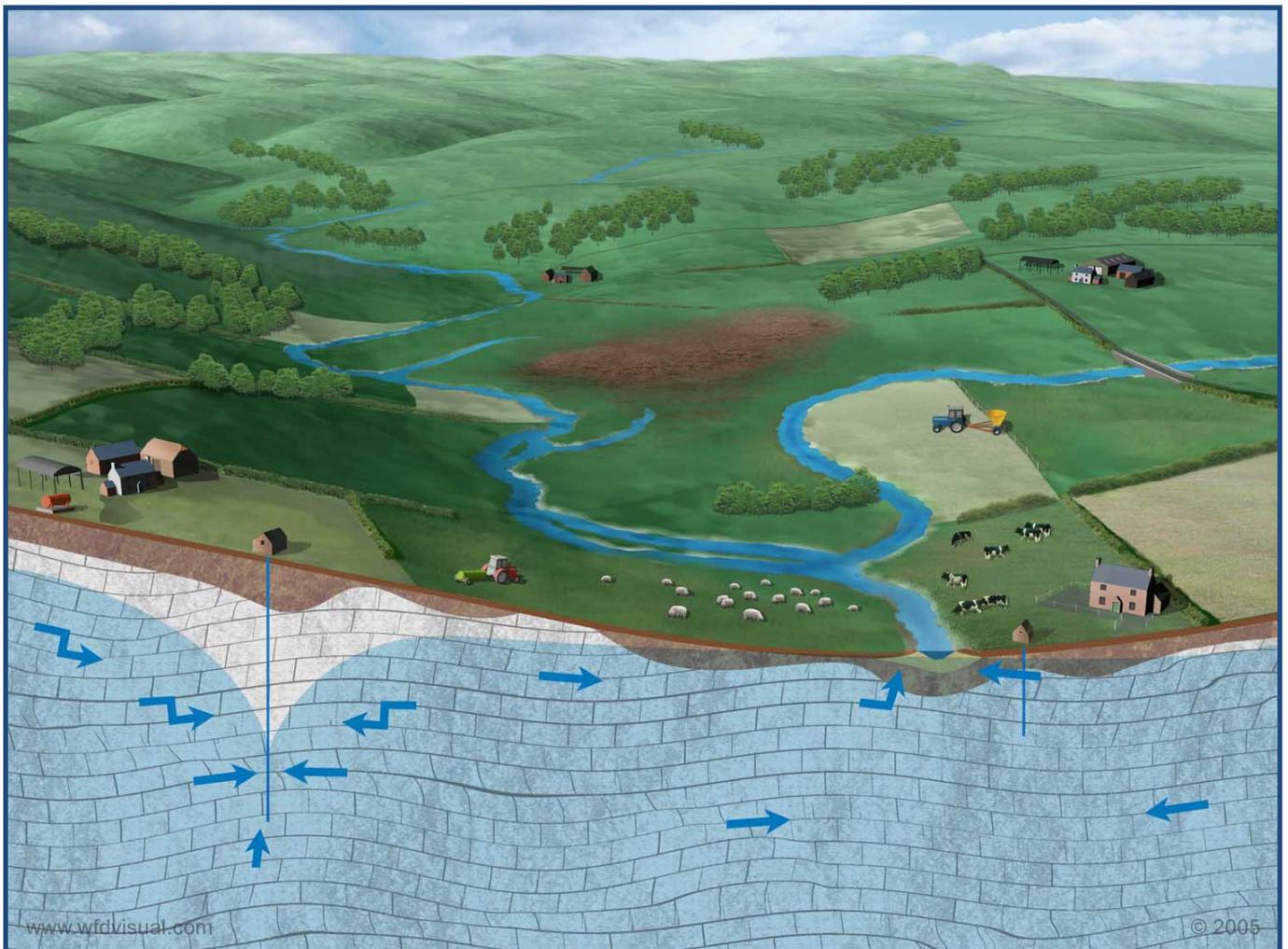

CLASSIFICATION OF HAZARDOUS AND NON-HAZARDOUS SUBSTANCES IN GROUNDWATER



Hydrometric and Groundwater Section
Office of Environmental Assessment

Version 1

December 2010





CLASSIFICATION OF HAZARDOUS AND NON- HAZARDOUS SUBSTANCES IN GROUNDWATER

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1 Introduction

The European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. 9 of 2010) establish a new strengthened regime for the protection of groundwater in line with the requirements of the Water Framework Directive (2000/60/EC) and the Groundwater Directive (2006/118/EC). Regulation 9(c–f) requires the Environmental Protection Agency to identify and publish a list of substances which are to be considered hazardous or non-hazardous and which the Agency considers to present an existing or potential risk of pollution. The initial list of hazardous and non-hazardous substances must be accompanied by a report that sets out the basis for the Agency’s determination in relation to the substances therein. The Agency shall, as it considers necessary, periodically review and publish updated or amended lists of hazardous and non-hazardous substances, and shall undertake any such consultation it considers necessary for the determination of hazardous and non-hazardous substances.

Regulation 9(a–b) states that hazardous substances must be prevented from entering groundwater, and the input of non-hazardous substances must be limited to ensure that such inputs do not cause a deterioration in groundwater status, or cause significant and sustained upward trends in the concentration of pollutants in groundwater. Appropriate controls should be placed on activities that discharge substances to groundwater. Therefore, the classification of substances as hazardous or non-hazardous is relevant in all cases where control of an input of pollutants to groundwater is required by the Regulations.

The remainder of this paper sets out the basis for the Agency’s hazardous substances determinations. Annex I provides a list of substances that have been classified as hazardous or non-hazardous. These substances are considered to present a potential risk of pollution where they are discharged to, or detected in, groundwater bodies.

1.1 Hazardous and non-hazardous substances

Hazardous substances are defined within Regulation 3 as “any substances or groups of substances that are toxic, persistent and liable to bio-accumulate, and other substances, or groups of substances, that give rise to an equivalent level of concern”.

Regulation 9(d) states that, for the purpose of identifying hazardous substances, the Agency shall take particular account of hazardous substances belonging to the families or groups 1 to 6 below, as well as those listed in families or groups 7 to 9 where these are considered hazardous.

1. Organohalogen compounds and substances which may form such compounds in the aquatic environment;
2. Organophosphorus compounds;
3. Organotin compounds;
4. Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties, or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in, or *via*, the aquatic environment;
5. Persistent hydrocarbons and persistent and bioaccumulable organic toxic substances;
6. Cyanides;
7. Metals and their compounds;
8. Arsenic and its compounds;
9. Biocides and plant protection products.

The substances listed in Schedule 6 (Part B) of the Regulations are considered to be of particular relevance to groundwater quality.

Non-hazardous substances are not defined in the Regulations or Directive 2006/118/EC, but can be taken as including all pollutants other than hazardous substances.

Schedule 6 of the Regulations indicates that where elevated concentrations of substances occur for natural hydrogeological reasons, the natural “background” concentration should be taken into account when assessing the impacts of pollution.

2 Legislative Background

The historical procedure for identifying substances that should be subject to having their input to groundwater controlled followed the approach of the EC Groundwater Directive (80/68/EEC). This involved identifying whether a substance belonged to the List I or List II groups or families of substances stated in the Directive. Introduction of List I substances to groundwater was prohibited and List II substances were to be controlled to prevent pollution of groundwater. However, some substances were beyond the scope of the Directive as they did not belong to the defined groups or families of substances, and therefore were not considered to be either List I or List II substances. The List I or List II groups or families of substances were originally included in the Directive because of their intrinsic toxicity, persistence and bioaccumulation properties and the substances were therefore limited or prevented from entering groundwater.

Regulation 3 defines hazardous substances as those that are toxic, persistent and liable to bioaccumulate, or give rise to an equivalent level of concern. A key difference between Directive 80/68/EEC and Directive 2006/118/EC is that in the original legislation, hazardous substances were restricted to those belonging to the groups and families of substances included in List I in the Directive, whereas the determination criteria in the new legislation are that the substance should have high persistence, bioaccumulation and toxicity properties. A substance must satisfy all three criteria to be classed as hazardous.

The criteria for persistence, bioaccumulation and toxicity are different to that in Directive 80/68/EEC, in that it is no longer necessary for a substance to be part of a family or group of substances for its input to groundwater to be subject to prevention or control. In accordance with the Water Framework Directive (WFD), any new method used to determine the persistence, bioaccumulation and toxicity of substances should ensure that resulting assessments will achieve an equivalent level of environmental protection to that provided in existing legislation, i.e. substances that were previously prevented from entering groundwater should still be prevented from entering groundwater, unless new data or evidence becomes available that would materially change a determination.

Additionally, new or previously undetermined substances should be assessed using the new requirements, i.e. based on the hazardous substance determination criteria specified in Directive 2006/118/EC.

3 Criteria for Determining Hazardous Substances

A hazardous substance is defined as one that is persistent, bioaccumulates and is toxic, or gives rise to an equivalent level of concern. Detail on how the intrinsic properties of a substance should be used to determine whether a substance is hazardous is not provided in Directive 2006/118/EC. However, persistence, bioaccumulation and toxicity criteria are given in Annex XIII of the REACH Regulations (EC, 2006) and are summarised below.

3.1 Persistence

As little or no information is available on persistence in groundwater, the assessment should be based on all available degradation data. In the absence of information on groundwater persistence, a substance shall be classified as being persistent if any of the following conditions apply:

- the half-life in marine water is higher than 60 days;
- the half-life in fresh or estuarine water is higher than 40 days;
- the half-life in marine sediments is higher than 180 days;
- the half-life in fresh or estuarine water sediments is higher than 120 days;
- the half-life in soil is higher than 120 days.

Note that if data for different media are presented as showing different degradation rates (for example if the substance has a half-life in freshwater of 60 days but a half life in freshwater sediments of 100 days), the substance should be classed as persistent, because the REACH Regulations state the classification is based on any one of the conditions above being applicable.

3.2 Bioaccumulation

A substance shall be classed as being bioaccumulative if:

- the bioconcentration factor (BCF) for aquatic species on a wet weight basis is greater than 2,000.

Where the bioconcentration factor (BCF) for aquatic species is unknown, the octanol/water partition coefficient (usually reported as a log K_{ow}) of 4.5 is taken as equivalent to a BCF of 2,000. The octanol/water partition coefficient is related to the solubility of a substance in water and is used to help determine the fate of substances in the environment. Therefore substances with $\log K_{ow} > 4.5$ are defined as being bioaccumulative.

3.3 Toxicity

A substance shall be classed as being toxic if any of the following conditions apply:

- the No Observable Effects Concentration (NOEC) for freshwater or marine organisms is less than 0.01 mg/l; or
- there is other evidence of chronic toxicity that could cause serious damage to health by prolonged exposure, as identified by the classifications in Directive 67/548/EEC:
 - T, R48 (Toxic); or
 - Xn, R48 (Harmful).

Using information from Regulation 1272/2008 (EC, 2008) and guidance provided by the European Chemicals Agency (ECHA, 2009), the following hazard categories are taken as equivalent to those in the REACH Regulations. Substances are defined as being toxic if:

- the substance is classified as being Acutely Toxic (Category 1, 2, 3), i.e. the substance is fatal or toxic if swallowed; or
- there is other evidence of chronic long-term toxicity if the substance is classified as being STOT SE1 and STOT RE1 categories, i.e. the Specific Target Organ Toxicity (STOT) for single exposure and repeat exposure.

3.4 Equivalent level of concern

Based on the definition of a hazardous substance in the Regulations, to classify a substance as being hazardous, the substance should be persistent and bioaccumulative and toxic. Adhering rigidly to this approach would mean that many substances that previously were prevented from entering groundwater under Directive 80/68/EEC would be deemed non-hazardous and for example, a substance that was acutely toxic, but not persistent or bioaccumulative would not be classified as hazardous.

However, taking each criterion in isolation, and defining a substance as being hazardous if it is persistent or bioaccumulative or toxic would result in almost every substance being classified as hazardous. Almost all organic compounds would be hazardous (as they are often bioaccumulative), all metals would be hazardous (due to persistence), and common substances

like caffeine, chloride, nitrate and phosphate would be hazardous (due to persistence). Many substances previously defined as List I substances under Directive 80/68/EEC would be classified as non-hazardous and it would be difficult, if not impossible to prevent some common substances, e.g. caffeine, from entering groundwater.

Therefore, consideration needs to be given to substances that give rise to an equivalent level of concern, to ensure that the requirements of the WFD, the Groundwater Directive (2006/118/EC) and various other EU directives are met. Where a substance is not persistent or not bioaccumulative or not toxic, the equivalent level of concern element is considered, e.g. where a substance is bioaccumulative and toxic, but is not persistent (based on the half life criteria), but is widely detected in groundwater samples, this would give rise to an equivalent level of concern.

Developing Persistence, Bioaccumulation and Toxicity (PBT) criteria that pose an equivalent level of concern to the defined PBT criteria enables a level of protection equivalent to previous legislation, i.e. Directive 80/67/EEC. It also ensures that the most problematic substances are defined as being hazardous and are therefore prevented from entering groundwater.

3.4.1 Substances that pose a specific risk to groundwater

Where groundwater monitoring data indicate that the substance has an average degradation half-life in groundwater of more than one year, or where no degradation data exist for groundwater, but representative groundwater monitoring data show that the substance is present in groundwater in a manner that is indicative of high persistence (i.e. the substance is regularly detected in groundwater samples), then the substance is classed as being very persistent. Note that using regular detections of a substance in groundwater sampling as a surrogate for persistence can sometimes be misleading because ongoing steady inputs of a substance may also be the cause of the regular detections in groundwater sampling.

Substances that have an average degradation half-life in groundwater of more than one year or are widely detected in groundwater and are both bioaccumulative and toxic shall therefore be classified as being hazardous.

3.4.2 Very toxic substances

Very toxic substances shall be categorised as hazardous substances, irrespective of their persistence and bioaccumulative properties, because they can enter the aqueous environment directly (direct discharge with little or no attenuation) and can have a significant impact on aquatic flora and fauna and human health.

The REACH Regulations do not have “very” toxic criteria, so the Agency has used the acutely toxic criteria in Regulation 1272/2008 (EC, 2008) to determine if a substance can be classified as being very toxic. Regulation 1272/2008 (EC, 2008) states that for the aquatic environment, if the lethal concentration which kills 50% of the test population (LC_{50}) within 96 hours, or the median effective concentration for an adverse effect other than death (EC_{50}), is less than 0.1 mg/l, the substance is very toxic.

Similarly, using information from Regulation 1272/2008 (EC, 2008) and guidance provided by the European Chemicals Agency (ECHA, 2009), a substance is determined to be very toxic where a substance is classified as carcinogenic (category 1 or 2 or Carc. 1A, 1B), mutagenic (category 1 or 2 or Muta. 1A, 1B, 2) or toxic for reproduction (category 1, 2 or 3 or Repr. 1A, 1B).

If a substance is persistent in groundwater or freshwater and the substance is toxic to humans (Acutely Toxic 1, 2, 3 or STOT SE1, STOT RE1), then there is the possibility of long term exposure, which could be fatal. Therefore these substances present an equivalent level of concern to substances that are very toxic.

3.4.3 Very persistent and very bioaccumulative substances

Irrespective of toxicity, substances that are very persistent and very bioaccumulative shall be classed as hazardous substances on the grounds that even low toxicity substances may become toxic in time if their concentration in groundwater reaches a certain level.

Under the REACH Regulations, a substance is classified as being very persistent if any of the following conditions apply:

- the half-life in marine, fresh or estuarine water is higher than 60 days; or
- the half-life in marine, fresh or estuarine water sediment is higher than 180 days; or
- the half-life in soil is higher than 180 days.

Similarly, also under the REACH Regulations, a substance shall be classed as being very bioaccumulative if:

- the BCF for aquatic species on a wet weight basis is greater than 5,000.

A substance is determined to be hazardous if it is persistent and bioaccumulative and toxic, or if the substance poses an equivalent level of concern to groundwater.

4 Methodology for Determining Hazardous Substances

4.1 Technical Substance Review

The substances selected for determination by the Agency are those historically defined as List I or List II substances under Directive 80/68/EEC and substances brought to the attention of the Agency or the Joint Agencies Groundwater Directive Advisory Group (JAGDAG¹) for review in the past. Interested stakeholders have the opportunity to submit substances for determination in the future and can provide additional data if they consider that substances should be classed as non-hazardous rather than hazardous or vice versa.

The purpose of JAGDAG is to provide advice on the intrinsic properties of substances and to ensure a consistent approach for determinations conducted on specific substances by the respective Agencies.

Future substance assessments will be undertaken on an ongoing basis, with substances considered for review and determination once they (and their respective PBT information) are brought to the attention of the Agency. Figure 1 shows the mechanism by which stakeholders can submit a request for substance determination, or provide information for the re-evaluation of a substance where a determination has already been made.

¹ JAGDAG is a UK body comprising the Environment Agency (EA), the Scottish Environment Protection Agency (SEPA), the Northern Ireland Environment Agency (NIEA), together with the Department of Environment, Food and Rural Affairs (DEFRA), other regulators and industry representatives. The Irish Environmental Protection Agency is an invited representative on this group. More information on JAGDAG can be obtained at <http://www.wfduk.org/jagdag>.

Essential information:	
1.	Contact details. (Name, Company, Address, email)
2.	Substance name and Chemical Abstracts Service (CAS) number.
3.	Synonyms.
4.	Why do you want the substance considered / reconsidered (if it already has been determined)? How urgent is the query?
Helpful information – please use your best endeavours to complete as much as possible:	
5.	Breakdown products and their CAS numbers.
6.	Product(s) it is commonly found in or common uses.
7.	Has the substance already been considered or is the substance on the ‘provisionally determined’ or ‘undetermined’ list?
8.	If applicable, have the breakdown products already been considered or is the substance on the ‘provisionally determined’ or ‘undetermined’ list?
9.	Evidence to assist determination * see below for requirements.
<p>* INFORMATION REQUIRED FOR DETERMINATION</p> <ol style="list-style-type: none"> Have risk phrases or hazard category codes been assigned to the substance? <ul style="list-style-type: none"> List all; disclose if none or no data. Has the substance been tested for biodegradation? <ul style="list-style-type: none"> Which tests? List all results. Has the half life of the substance been determined? <ul style="list-style-type: none"> List all available values for marine, fresh, estuarine water; groundwater; marine, fresh, estuarine sediment; soil (in days). What is the log K_{ow} (octanol-water partition coefficient) for the substance? <ul style="list-style-type: none"> Has it been measured or calculated? Has the substance been tested for bioconcentration? <ul style="list-style-type: none"> Which species? List all values for bioconcentration factor. What aquatic toxicity testing has been done? Acute and/or chronic? Which species? <ul style="list-style-type: none"> List all values for No Observed Effect Concentration (NOEC) and/or Lethal Concentration 50 or Median Effective Concentration 50 (LC_{50}/EC_{50}) (in mg/l) with details of species, endpoint (e.g. mortality, reproduction), and length of exposure (days). Has acute toxicity testing been done? <ul style="list-style-type: none"> Which species? List all values for oral Lethal Dose 50 (LD_{50}) (in mg/kg bodyweight). Have any short-term toxicity studies been conducted? List types of studies and any lowest-observed-adverse-effect-levels (LOAELs) or no-observed-adverse-effect-levels (NOAELs). Has any developmental toxicity or reproductive toxicity study been conducted? List any LOAELs or NOAELs. Have any genotoxicity studies been conducted? Provide details and results. Have any carcinogenicity studies been conducted? Provide details and results. <p>Please provide full references for all data or attach a full copy of all test results and/or substance Material Safety Data Sheets (MSDS).</p>	

Figure 1 Substance determination query submission form

4.2 Assessment of Existing List I and List II Substances

To meet the WFD requirement and to ensure a level of protection at least equivalent to that of previous legislation, all List I substances from Directive 80/68/EEC are classified as hazardous

substances by default, and List II substances become non-hazardous substances. If new data/evidence becomes available, the substance concerned can be re-assessed using the new assessment method.

4.3 Radioactive Substances

Radioactive substances are now included within the scope of the WFD and the Groundwater Directive (2006/118/EC) and are deemed hazardous because they are potentially carcinogenic, mutagenic, and are toxic for reproduction. The basis of radiation protection is to ensure that the dose to humans and non-human species, from all sources of radiation in combination, is kept below the dose limits set in national regulations or by the International Commission for Radiological Protection (ICRP). The hazard from anthropogenic radionuclides present in groundwater should, therefore, be assessed in accordance with the provisions of the Radiological Protection Act (S.I. 125 of 2000).

4.4 Substances that have insufficient data available to undertake an assessment

Persistence, Bioaccumulation and Toxicity (PBT) data are often not available (or are only partially available) for particular substances, e.g. information may exist on persistence or toxicity, but not on bioaccumulation. Historically, the PBT information has only been gathered once the substance has been detected in the environment and therefore has required controls to prevent or limit its use. The implementation of the REACH Regulations places a greater onus on industries to provide information on PBT criteria and to prove that the substances (products) they produce will not have a harmful impact on the environment. However, PBT information is often limited, particularly for newly emerging products and substances. Consequently, a precautionary approach is required, in that all new substances are provisionally determined to be hazardous, unless data are provided to indicate otherwise. It could be that data are available for some criteria but not others; in this situation it would be assumed that the substance “fails” the criteria for which there is insufficient data. This approach will ensure that it will be in the manufacturer’s interest to make the necessary data available.

4.5 Assessment of all other substances

Figure 2 shows the process through which a substance will be classed as hazardous or non-hazardous.

	Substance Name (CAS xxxx-xxxx-xxxx)		
	Yes / No / No data	Value	Reference
Is the substance persistent, bioaccumulative and toxic?			
PERSISTENCE			
Is there evidence of substance biodegradation in groundwater? <i>If answer to question is YES, the substance is not persistent</i> <i>If answer to question is NO, additional data on half life is required</i>			
Is the half life in marine water ≥ 60 days? Is the half life in fresh or estuarine water ≥ 40 days? Is the half life in marine sediment ≥ 180 days? Is the half life in fresh or estuarine sediment ≥ 120 days? Is the half life in soil ≥ 120 days? <i>If answer to any question is YES, the substance is persistent</i> <i>If answer to all questions is NO, the substance is not persistent</i>			
If sufficient data are not available, assume the substance is persistent			
BIOACCUMULATION			
Is the bioconcentration factor (BCF) for aquatic species (wet weight) ≥ 2000 ? <i>If answer to question is YES, the substance is bioaccumulative</i>			
If no BCF data are available, is the log Kow ≥ 4.5 ? <i>If answer to question is YES, the substance is bioaccumulative</i>			
If sufficient data are not available, assume the substance is bioaccumulative			
TOXICITY			
Is the lowest chronic NOEC for freshwater or marine organisms ≤ 0.01 mg/l? Does Directive 67/548/EEC classify the substance as being T, R48 (Toxic), or Xn, R48 (Harmful)? Is the substance toxic or fatal if swallowed (Acutely Toxic category 1, 2 or 3)? Is there substantial evidence of long term toxicity (STOT SE1 or STOT RE1)? <i>If answer to any question is YES, the substance is toxic</i> <i>If answer to all questions is NO, the substance is not toxic</i>			
If sufficient data are not available, assume the substance is toxic			
Is the substance persistent AND bioaccumulative AND toxic? If the answer is YES, the substance is HAZARDOUS			
Does the substance pose an equivalent level of concern?			
Does the substance pose a specific risk to groundwater?			
Does groundwater monitoring data show half life in groundwater ≥ 1 year? Do groundwater samples regularly show detection above the NOEC? <i>If the answer to either question is YES, the substance poses a specific risk to groundwater</i>			
Does the substance pose a specific risk to groundwater AND is the substance is both bioaccumulative and toxic? If the answer is YES, the substance is HAZARDOUS			
Is the substance very toxic?			
Is the lowest acute toxicity (LC50 or EC50) ≤ 0.1 mg/l? Is the substance carcinogenic (category 1 or 2 or Carc. 1A, 1B), mutagenic (category 1 or 2 or Muta. 1A, 1B, 2) or toxic for reproduction (category 1, 2 or 3 or Repr. 1A, 1B)? Is substance persistent in freshwater or groundwater AND toxic to humans (Acutely Toxic 1, 2, 3 or STOT SE1, STOT RE1)? <i>If answer to any question is YES, the substance is very toxic</i>			
If sufficient data are not available, assume the substance is very toxic			
Is the substance very toxic? If the answer is YES, the substance is HAZARDOUS			
Is the substance very persistent and very bioaccumulative?			
Is the half life in marine, fresh or estuarine water ≥ 60 days? Is the half life in marine, fresh or estuarine sediment ≥ 180 days? Is the half life in soil ≥ 180 days? <i>If the answer to any question is YES, the substance is very persistent</i>			
Is the bioconcentration factor ≥ 5000 ? <i>If the answer is YES, the substance is very bioaccumulative</i>			
Is the substance is very persistent AND very bioaccumulative? If the answer is YES, the substance is HAZARDOUS			
REFERENCES			

Figure 2 Criteria for assessing whether a substance is hazardous

5 Summary of Assessments Undertaken to Date

To date 746 substances have been considered for assessment by the Agency. Table 1 shows a summary of the assessments undertaken.

Table 1 Summary of substance assessment by the Agency

Total substances assessed	746
Determined	446
Hazardous	307
Non-Hazardous	139
Provisionally determined	161
Hazardous	97
Non-Hazardous	64
Undetermined	139
Total Hazardous	404
Total Non-Hazardous	203
Undetermined	139

The list of substances determined to date is provided in Annex 1. Note, the CAS Registry Number is not known for all substances.

In conjunction with JAGDAG, the Agency will review the provisionally determined and undetermined substances, with the view to making final determinations. The Agency will also consider new substances brought to its attention on an ongoing basis. To ensure consistency between the UK and Ireland, the Agency will continue to work closely with the JAGDAG group and will discuss substance determinations and PBT information that has been made available to the respective Agencies. Whilst this list of potential pollutants is required to enable the prevention of hazardous substances and to enable controls to be placed on the input of non-hazardous substances, both now and in the future, it should be stressed that many of the compounds listed have not as yet been detected in Irish groundwater.

6 Future Assessments

Figure 3 shows the substance assessment process. Initially a request for substance determination will be made to the Agency, either from Agency staff, a third party stakeholder, or from the respective Agencies in the UK (via JAGDAG). The Agency will make a provisional determination based on the intrinsic properties of the substance. The Agency may discuss the determination with the JAGDAG Group, as this group may have additional information on the substance that can assist in the determination. Once determinations have been made and have been signed off by the Agency, they will be published on a Register of substance determinations. Where a third party stakeholder has information on the intrinsic properties of a substance, which would alter the Agency's determination, they should make this information available to the Agency. The Agency will consider this information and repeat the process outlined in Figure 3.

New determinations can only be made once information on the persistence, bioaccumulation and toxicity of substances becomes known. Therefore, only substances that have been brought to the attention of the various Agencies can be reviewed. Similarly, only substances that have been reviewed can be identified as hazardous or non-hazardous substances. Once a substance comes to the attention of the various Agencies, it may still take some time for manufacturers to

provide persistence, bioaccumulation and toxicity information. The default position of the Agency is a precautionary one, in that the Agency will identify a substance brought to its attention as being hazardous until this information is available.

Where a substance is determined to be hazardous, its entry to groundwater should be prevented. Where a substance is determined to be non-hazardous, its entry to groundwater should be limited to the extent that it does not cause a groundwater body to be at poor status or result in a statistically and environmentally significant upward trend in the concentration of a substance. The appropriate controls on hazardous and non-hazardous substances should be reflected in the conditions that surround activities that discharge to groundwater.

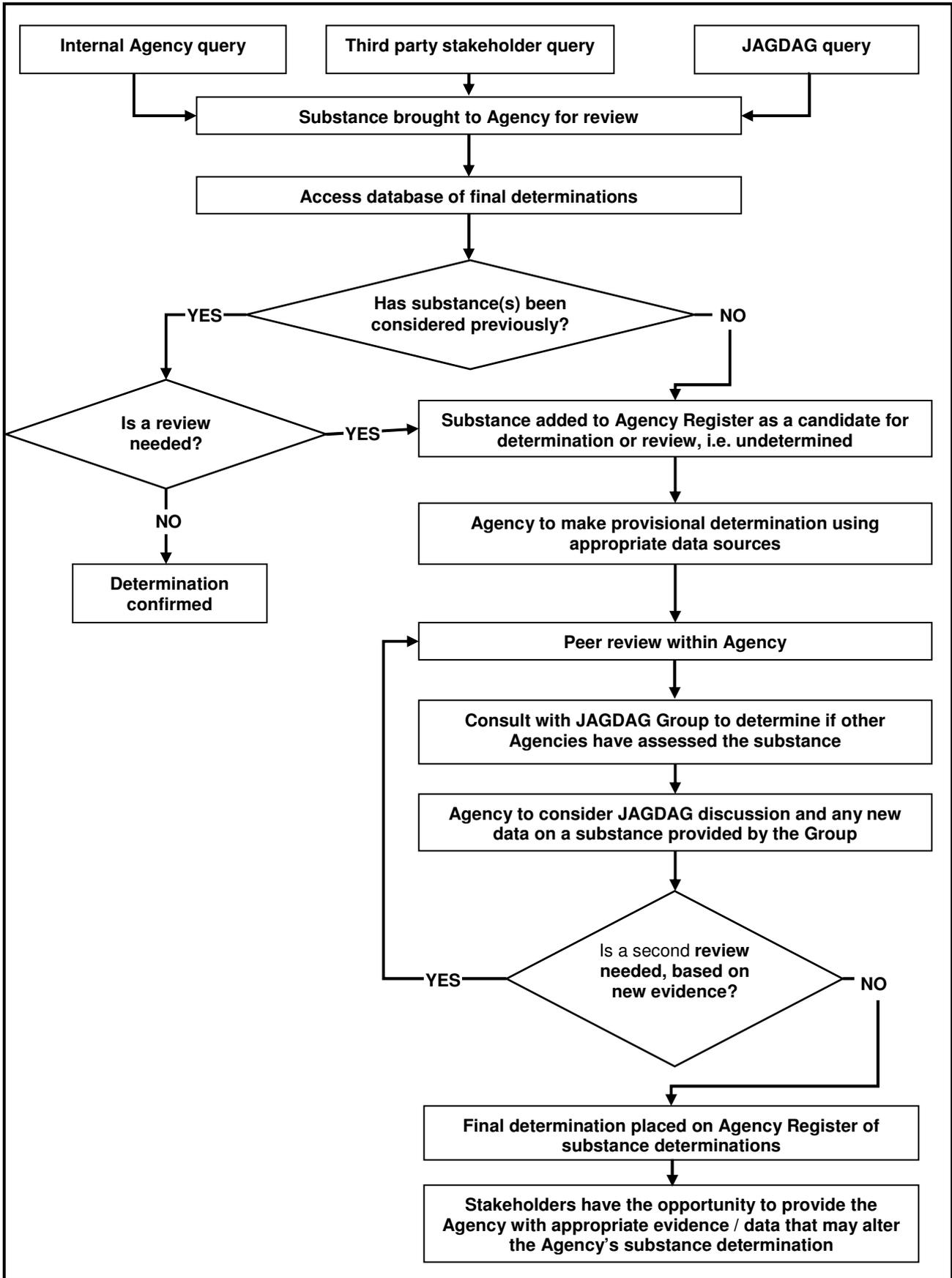


Figure 3 Process for future assessment of substances

7 References

ECHA (2009) European Chemicals Agency guidance to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010).

European Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

European Council Directive 80/60/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances.

European Council Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. (Water Framework Directive).

European Council Regulation 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Regulation, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

European Council Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration. (Groundwater Directive).

European Council Regulation 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Radiological Protection Act, 1991 (Ionising Radiation) Order, 2000 (S.I. No. 125 of 2000).

Annex 1 – List of Substances Classified as being Hazardous or Non-Hazardous

Substance	CAS Registry Number	Hazardous / Non-Hazardous Determination	Reason for Determination
(2,4,5-Trichlorophenoxy) acetic acid	000093-76-5	Hazardous	Previously List I Substance
(2,4,5-Trichlorophenoxy) propionic acid	000093-72-1	Hazardous	Previously List I Substance
(2-Naphthyloxy) acetic acid	000120-23-0	Non-Hazardous	Previously List II Substance
(Alkylaryl) trimethylammonium chloride	61789-18-2	Non-Hazardous	Previously List II Substance
1,1'-(1,4-Phenylene) bis ethanone	1009-61-1	Undetermined	Previously Neither List I or II (Determination Required)
1,1,1,2-Tetrafluoroethane	811-97-2	Hazardous	Previously List I Substance (Subject to Review)
1,1,1-Trichloroethane	000071-55-6	Hazardous	Previously List I Substance
1,1,2,2-Tetrachloroethane	000630-20-6	Hazardous	Previously List I Substance
1,1,2-Trichloroethane	000079-00-5	Hazardous	Previously List I Substance
1,1,2-Trichlorotrifluoroethane	000076-13-1	Hazardous	Previously List I Substance
1,1-Dichloroethane	000075-34-3	Hazardous	Previously List I Substance
1,1-Dichloroethene	000075-35-4	Hazardous	Previously List I Substance
1,2,3,4-Tetrachlorobenzene	000634-66-2	Hazardous	Previously List I Substance
1,2,3,5-Tetrachlorobenzene	000634-90-2	Hazardous	Previously List I Substance
1,2,4,5-Tetrachlorobenzene	000095-94-3	Hazardous	Previously List I Substance
1,2,4-Trichlorobenzene	000120-82-1	Hazardous	Previously List I Substance
1,2,4-Trimethylbenzene	000095-63-6	Hazardous	Previously List I Substance
1,2-Dibromoethane	000106-93-4	Hazardous	Previously List I Substance
1,2-Dichloro-3-nitrobenzene	003209-22-1	Hazardous	Previously List I Substance
1,2-Dichlorobenzene	000095-50-1	Hazardous	Previously List I Substance
1,2-Dichloroethane	000107-06-2	Hazardous	Previously List I Substance
1,2-Dichloroethene	000156-59-2	Hazardous	Previously List I Substance
1,2-Dichloropropane	000078-87-5	Hazardous	Previously List I Substance
1,2-Diethylbenzene (C ₁₀ H ₁₄)	135-01-3	Hazardous	Previously List I Substance (Subject to Review)
1,3,5-Trimethylbenzene	108-67-8	Hazardous	Previously List I Substance (Subject to Review)
1,3-Dichloro-2-propanol	000096-23-1	Hazardous	Previously List I Substance
1,3-Dichlorobenzene	000541-73-1	Hazardous	Previously List I Substance
1,3-Dichloropropene	010061-01-5	Hazardous	Previously List I Substance
1,3-Diethylbenzene (C ₁₀ H ₁₄)	141-93-5	Hazardous	Previously List I Substance (Subject to Review)
1,4-Dichloro-2-nitrobenzene	000089-61-2	Hazardous	Previously List I Substance
1,4-Dichlorobenzene	000106-46-7	Hazardous	Previously List I Substance
1,6-Dichlorohexane	002163-00-0	Hazardous	Previously List I Substance

1-[4-(1-Hydroxy-1-methylethyl)phenyl] ethanone	54549-72-3	Undetermined	Previously Neither List I or II (Determination Required)
17 β -Oestradiol	000050-28-2	Undetermined	Previously Neither List I or II (Determination Required)
1-Bromopropane	000106-94-5	Hazardous	Previously List I Substance
1-Chlorohexane	000544-10-5	Hazardous	Previously List I Substance
1-Fluoro-4-isocyanatobenzene	001195-45-5	Hazardous	Previously List I Substance
1H-Benzimidazole,2-ethyl-7-nitro-1-propyl-5-(trifluoromethyl)	55702-44-8	Hazardous	Previously List I Substance (Subject to Review)
1-Naphthol	000090-15-3	Undetermined	Previously Neither List I or II (Determination Required)
1-Naphthylacetic acid	000086-87-3	Non-Hazardous	Previously List II Substance
2,2-Bis(chloromethyl)trimethylene bis(bis(2-chloroethyl)phosphate) (V6)	38051-10-4	Hazardous	Previously List I Substance (Subject to Review)
2,2-Dichloropropanoic acid	000075-99-0	Hazardous	Previously List I Substance
2,3-Dichlorophenol	000576-24-9	Hazardous	Previously List I Substance
2,3-Dichloropropene	000078-88-6	Hazardous	Previously List I Substance
2,3-Dimercaptopropan-1-ol	59-52-9	Non-Hazardous	Previously List II Substance (Subject to Review)
2,4,5-Trichlorophenol	000095-95-4	Hazardous	Previously List I Substance
2,4,6-Trichloro-1,3,5-triazine	000108-77-0	Hazardous	Previously List I Substance
2,4,6-Trichlorophenol	000088-06-2	Hazardous	Previously List I Substance
2,4-D ester	1929-73-3	Hazardous	Previously List I Substance (Subject to Review)
2,4-Dichlorophenol	000120-83-2	Hazardous	Previously List I Substance
2,4-Dichlorophenoxy-4-aniline	14861-17-7	Hazardous	Previously List I Substance
2,4-Dichlorophenoxyacetic acid	000094-75-7	Non-Hazardous	Previously List II Substance
2,4-Dichlorophenoxybutyric acid	000094-82-6	Hazardous	Previously List I Substance
2,6-Dichlorophenol	000087-65-0	Hazardous	Previously List I Substance
2-Amino butane	13952-84-6	Undetermined	Previously Neither List I or II (Determination Required)
2-Amino-4-chlorophenol	000095-85-2	Hazardous	Previously List I Substance
2-Benzyl-4-chlorophenol	000120-32-1	Hazardous	Previously List I Substance
2-Bromo-2-nitropropane-1,3-diol (bronopol)	52-51-7	Hazardous	Previously List I Substance (Subject to Review)
2-Butoxyethanol	111-76-2	Undetermined	Previously Neither List I or II (Determination Required)
2-Chloro-1,3-butadiene	000126-99-8	Hazardous	Previously List I Substance
2-Chloroaniline	000095-51-2	Hazardous	Previously List I Substance
2-Chloroanthraquinone	000082-44-0	Hazardous	Previously List I Substance
2-Chloroethanol	000107-07-3	Hazardous	Previously List I Substance
2-Chloroethylphosphonic acid	016672-87-0	Non-Hazardous	Previously List II Substance
2-Chlorophenol	000095-57-8	Hazardous	Previously List I Substance
2-Chlorotoluene	000095-49-8	Hazardous	Previously List I Substance

2-Isopropyl-6-methyl-4-pyrimidol		Undetermined	Previously Neither List I or II (Determination Required)
2-Mercaptobenzothiazole	149-30-4	Undetermined	Previously Neither List I or II (Determination Required)
2-Methyl-4-isothiazolin-3-one	2682-20-4	Non-Hazardous	Previously List II Substance (Subject to Review)
2-Methylnaphthalene	91-57-6	Hazardous	Previously List I Substance (Subject to Review)
3,4-Dichloronitrobenzene	000099-54-7	Hazardous	Previously List I Substance
3-Butoxypropan-2-ol	5131-66-8	Undetermined	Previously Neither List I or II (Determination Required)
3-Chloro-2-butanone	4091-39-8	Hazardous	Previously List I Substance (Subject to Review)
3-Chloroaniline	000108-42-9	Hazardous	Previously List I Substance
3-Chlorophenol	000108-43-0	Hazardous	Previously List I Substance
3-Chloropropene	000107-05-1	Hazardous	Previously List I Substance
3-Iodo-2-propynyl n-butyl carbamate (IPBC)	055406-53-6	Hazardous	Previously List I Substance
4-(4-Chloro-2-methylphenoxy) butyric acid	000094-81-5	Hazardous	Previously List I Substance
4-Chloro-2-methylphenol	001570-64-5	Hazardous	Previously List I Substance
4-Chloro-2-methylphenoxy acetic acid	000094-74-6	Non-Hazardous	Previously List II Substance
4-Chloro-2-nitroaniline	000089-63-4	Hazardous	Previously List I Substance
4-Chloro-3-methylphenol	000059-50-7	Hazardous	Previously List I Substance
4-Chloroaniline	000106-47-8	Hazardous	Previously List I Substance
4-Chlorophenol	000106-48-9	Hazardous	Previously List I Substance
4-Chlorotoluene	000106-43-4	Hazardous	Previously List I Substance
4-Indol-3-butyric acid	000133-32-4	Non-Hazardous	Previously List II Substance
5-Chloro-2-methyl-4-isothiazolin-3-one	026172-55-4	Hazardous	Previously List I Substance
6, 7-Dichloro-2-methyl-1, 4-naphthoquinone	117157-33-2	Hazardous	Previously List I Substance (Subject to Review)
Abamectin	71751-41-2	Non-Hazardous	Previously List II Substance (Subject to Review)
Acenaphthene	000083-32-9	Hazardous	Previously List I Substance
Acetic acid	64-19-7	Undetermined	Previously Neither List I or II (Determination Required)
Acetodiphosphonic acid	2809-21-4	Hazardous	Previously List I Substance (Subject to Review)
Acetone	000067-64-1	Undetermined	Previously Neither List I or II (Determination Required)
Acrylic acid	79-10-7	Undetermined	Previously Neither List I or II (Determination Required)
Alachlor	015972-60-8	Hazardous	Previously List I Substance
Alcohol (C ₁₂ -C ₁₅) ethoxylated	68131-39-5	Undetermined	Previously Neither List I or II (Determination Required)
Aldicarb	000116-06-3	Non-Hazardous	Previously List II Substance
Aldrin	000309-00-2	Hazardous	Previously List I Substance
Aliphatic hydrocarbons		Hazardous	Previously List I Substance (Subject to Review)

Alkanes, C _{=>18} , chloro	085422-92-0; 063449-39-8	Hazardous	Previously List I Substance
Alkanes, C ₁₀₋₁₃ , chloro	085535-84-8	Hazardous	Previously List I Substance
Alkanes, C ₁₄₋₁₇ , chloro	085535-85-9	Hazardous	Previously List I Substance
Alkenes		Hazardous	Previously List I Substance (Subject to Review)
Alkyl benzalkonium chloride	8001-54-5?	Non-Hazardous	Previously List II Substance
Alkyl dimethyl benzyl ammonium chloride	63449-41-2 or 68391-01-5 or 61789-71-7 or 8001-54-5	Non-Hazardous	Previously List II Substance (Subject to Review)
Alkyl dimethylamine oxide	70592-80-2	Undetermined	Previously Neither List I or II (Determination Required)
Alloxydim-sodium	055635-13-7	Non-Hazardous	Previously List II Substance
Alpha,alpha-Dichlorotoluene	000098-87-3	Hazardous	Previously List I Substance
Alpha-chlorotoluene	000100-44-7	Hazardous	Previously List I Substance
Alpha-cypermethrin	067375-30-8	Hazardous	Previously List I Substance
Alpha-endosulfan	000959-98-8	Hazardous	Previously List I Substance
Alphaolephine sulfonate, sodium salt	68439-57-6	Undetermined	Previously Neither List I or II (Determination Required)
Alpha-trifluoro-2-nitrotoluene	384-22-5	Hazardous	Previously List I Substance
Alpha-trifluoro-3-nitro-4-chloro-toluene	121-17-5	Hazardous	Previously List I Substance
Alpha-trifluoro-3-nitrotoluene	98-46-4	Hazardous	Previously List I Substance
Alpha-trifluoro-4-nitrotoluene	402-54-0	Hazardous	Previously List I Substance
Aluminium ammonium sulphate	007784-26-1	Non-Hazardous	Previously List II Substance
Aluminium sulphate	010043-01-3	Non-Hazardous	Previously List II Substance
Amidosulfuron	120923-37-7	Non-Hazardous	Previously List II Substance
Amitraz	033089-61-1	Non-Hazardous	Previously List II Substance
Amitrole	000061-82-5	Hazardous	Previously List I Substance
Ammonia	007664-41-7	Non-Hazardous	Previously List II Substance
Ammonium carbonate	000506-87-6	Non-Hazardous	Previously List II Substance
Ammonium ferrocyanide	14481-29-9	Undetermined	Previously Neither List I or II (Determination Required)
Ammonium ferrous ferricyanide		Undetermined	Previously Neither List I or II (Determination Required)
Anilazine	000101-05-3	Hazardous	Previously List I Substance
Aniline	62-53-3	Non-Hazardous	Previously List II Substance (Subject to Review)
Anionic polyacrylamide		Hazardous	Previously List I Substance (Subject to Review)
Anthracene	000120-12-7	Hazardous	Previously List I Substance
Anthraquinone	000084-65-1	Non-Hazardous	Previously List II Substance
Antimony	7440-36-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Arsenic	7440-38-2	Hazardous	Previously List I Substance (Subject to Review)
Asulam	003337-71-7	Non-Hazardous	Previously List II Substance
Atrazine	001912-24-9	Hazardous	Previously List I Substance

Azaperone	001649-18-9	Hazardous	Previously List I Substance
Azinphos ethyl	002642-71-9	Hazardous	Previously List I Substance
Azinphos methyl	000086-50-0	Hazardous	Previously List I Substance
Aziprotryne	004658-28-0	Non-Hazardous	Previously List II Substance
Azoxystrobin	131860-33-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Bacillus thuringiensis	068038-71-1	Non-Hazardous	Previously List II Substance
Barium	7440-39-3	Non-Hazardous	Previously List II Substance (Subject to Review)
BCDMH	32718-18-6	Hazardous	Previously List I Substance (Subject to Review)
Benalaxyl	071626-11-4	Non-Hazardous	Previously List II Substance
Benazolin	003813-05-6	Hazardous	Previously List I Substance
Bendiocarb	022781-23-3	Non-Hazardous	Previously List II Substance
Benfuracarb	082560-54-1	Non-Hazardous	Previously List II Substance
Benodanil	015310-01-7	Hazardous	Previously List I Substance
Benomyl	017804-35-2	Hazardous	Previously List I Substance
Bentazone	025057-89-0	Non-Hazardous	Previously List II Substance
Benthiavalicarb	413615-35-7	Hazardous	Previously List I Substance (Subject to Review)
Benzalkonium chloride	8001-54-5	Non-Hazardous	Previously List II Substance (Subject to Review)
Benzene	000071-43-2	Hazardous	Previously List I Substance
Benzeneacetone	23876-14-4	Hazardous	Previously List I Substance (Subject to Review)
Benzo(a)pyrene	000050-32-8	Hazardous	Previously List I Substance
Benzo(b)fluoranthene	000205-99-2	Hazardous	Previously List I Substance
Benzo(g,h,i)perylene	000191-24-2	Hazardous	Previously List I Substance
Benzo(k)fluoranthene	000207-08-9	Hazardous	Previously List I Substance
Benzophenone	119-61-9	Undetermined	Previously Neither List I or II (Determination Required)
Benzothiazole	95-16-9	Undetermined	Previously Neither List I or II (Determination Required)
Benzotriazole	95-14-7	Undetermined	Previously Neither List I or II (Determination Required)
Benzyl ammonium chloride	3287-99-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Beryllium	7440-41-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Bifenox	042576-02-3	Hazardous	Previously List I Substance
Bifenthrin	082657-04-3	Hazardous	Previously List I Substance
Bis(2-chloroisopropyl)ether	000108-60-1	Hazardous	Previously List I Substance
Bitertanol	055179-31-2	Non-Hazardous	Previously List II Substance
Bitumen	N/a (Mixture)	Hazardous	Previously List I Substance
Bordeaux mixture (copper mixture)	8011-63-0	Non-Hazardous	Previously List II Substance
Boron	7440-42-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Bromacil	000314-40-9	Hazardous	Previously List I Substance

Bromate	15541-45-4	Hazardous	Previously List I Substance (Subject to Review)
Bromide	7726-95-6	Undetermined	Previously Neither List I or II (Determination Required)
Brominated diphenylether	N/a (Group)	Hazardous	Previously List I Substance
Brominated organic compounds	60-44-6; 125- 51-9; 50-34-0; 114-49-8; 7219-91-2; 90- 22-2	Hazardous	Previously List I Substance (Subject to Review)
Bromochloroacetonitrile	83463-62-1	Hazardous	Previously List I Substance (Subject to Review)
Bromoform	75-25-2	Hazardous	Previously List I Substance (Subject to Review)
Bromoxynil (as Bromoxynil- phenol)	001689-84-5	Hazardous	Previously List I Substance
Bromoxynil octanoate	001689-99-2	Hazardous	Previously List I Substance
Bupirimate	041483-43-6	Non-Hazardous	Previously List II Substance
Buprofezin	69327-76-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Butan-2-ol	78-92-2	Undetermined	Previously Neither List I or II (Determination Required)
Butyl benzyl phthalate	000085-68-7	Undetermined	Previously Neither List I or II (Determination Required)
Butyl diethoxol	112-34-5	Undetermined	Previously Neither List I or II (Determination Required)
Butylated hydroxyanisole	25013-16-5	Undetermined	Previously Neither List I or II (Determination Required)
Cadmium	007440-43-9	Hazardous	Previously List I Substance
Calcium	7789-78-8	Undetermined	Previously Neither List I or II (Determination Required)
Calcium hydroxide	1305-62-0	Undetermined	Previously Neither List I or II (Determination Required)
Calcium hydroxide oxide	163383-27-5	Undetermined	Previously Neither List I or II (Determination Required)
Calcium hypochlorite	7778-54-3	Non-Hazardous	Previously List II Substance (Subject to Review)
Captan	000133-06-2	Hazardous	Previously List I Substance
Carbaryl	000063-25-2	Non-Hazardous	Previously List II Substance
Carbendazim	010605-21-7	Hazardous	Previously List I Substance
Carbetamide	016118-49-3	Non-Hazardous	Previously List II Substance
Carbofuran	001563-66-2	Non-Hazardous	Previously List II Substance
Carbon disulphide	000075-15-0	Non-Hazardous	Previously List II Substance
Carbon tetrachloride	000056-23-5	Hazardous	Previously List I Substance
Carbosulfan	055285-14-8	Non-Hazardous	Previously List II Substance
Carboxin	005234-68-4	Non-Hazardous	Previously List II Substance
Carfentrazone-ethyl	128639-02-1	Hazardous	Previously List I Substance (Subject to Review)
Cetrimide	000057-09-0	Non-Hazardous	Previously List II Substance
Chlorbufam	001967-16-4	Hazardous	Previously List I Substance
Chlordane	005103-74-2	Hazardous	Previously List I Substance

Chlorfenvinphos	000470-90-6	Hazardous	Previously List I Substance
Chlorfluazuron	71422-67-8	Hazardous	Previously List I Substance (Subject to Review)
Chlorhexidene	55-56-1	Hazardous	Previously List I Substance (Subject to Review)
Chloridazon	001698-60-8	Hazardous	Previously List I Substance
Chloride	16887-00-6	Undetermined	Previously Neither List I or II (Determination Required)
Chlorine	007782-50-5	Non-Hazardous	Previously List II Substance
Chlormequat chloride	000999-81-5	Non-Hazardous	Previously List II Substance
Chloro-2,4-dinitrobenzene	000097-00-7	Hazardous	Previously List I Substance
Chloro-2-nitrobenzene	000088-73-3	Hazardous	Previously List I Substance
Chloro-3-nitrobenzene	000121-73-3	Hazardous	Previously List I Substance
Chloro-4-nitrobenzene	000100-00-5	Hazardous	Previously List I Substance
Chloroacetic acid	000079-11-8	Hazardous	Previously List I Substance
Chloroacetonitrile	107-14-2	Hazardous	Previously List I Substance (Subject to Review)
Chloroaminotoluene	N/a (Group)	Hazardous	Previously List I Substance
Chlorobenzene	000108-90-7	Hazardous	Previously List I Substance
Chlorodibromomethane	124-48-1	Hazardous	Previously List I Substance (Subject to Review)
Chloroethylene	000075-01-4	Hazardous	Previously List I Substance
Chloroform	000067-66-3	Hazardous	Previously List I Substance
Chloronaphthalene	000090-13-1	Hazardous	Previously List I Substance
Chloronitrotoluene	000121-86-8	Hazardous	Previously List I Substance
Chloropicrin	000076-06-2	Hazardous	Previously List I Substance
Chloropropanone	78-95-5	Hazardous	Previously List I Substance (Subject to Review)
Chloropropyl phosphate isomers		Hazardous	Previously List I Substance (Subject to Review)
Chlorothalonil	001897-45-6	Hazardous	Previously List I Substance
Chlorotoluron	015545-48-9	Hazardous	Previously List I Substance
Chloroxuron	001982-47-4	Hazardous	Previously List I Substance
Chlorpropham	000101-21-3	Hazardous	Previously List I Substance
Chlorpyrifos	002921-88-2	Hazardous	Previously List I Substance
Chlorpyrifos-methyl	5598-13-0	Hazardous	Previously List I Substance (Subject to Review)
Chlorthal-dimethyl	001861-32-1	Hazardous	Previously List I Substance
Chromium VI	18540-29-9	Non-Hazardous	Previously List II Substance (Subject to Review)
Citric acid	000077-92-9	Undetermined	Previously Neither List I or II (Determination Required)
Clodinafop-propargyl	105512-06-9	Non-Hazardous	Previously List II Substance
Clofentezine	074115-24-5	Hazardous	Previously List I Substance
Clomazone	81777-89-1	Hazardous	Previously List I Substance (Subject to Review)
Clopyralid	001702-17-6	Hazardous	Previously List I Substance

Coal Tars	8007-45-2	Hazardous	Previously List I Substance (Subject to Review)
Cobalt	7440-48-4	Non-Hazardous	Previously List II Substance (Subject to Review)
Cocamido propyl betaine	61789-40-0	Undetermined	Previously Neither List I or II (Determination Required)
Cocamido propyldimethyl amine oxide	68155-09-9	Undetermined	Previously Neither List I or II (Determination Required)
Cocobenzyl dimethyl ammonium chloride	61789-71-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Copper ammonium carbonate	33113-08-5	Non-Hazardous	Previously List II Substance (Subject to Review)
Copper hydroxide	020427-59-2	Non-Hazardous	Previously List II Substance
Copper oxychloride	001332-40-7 and 001332- 65-6	Non-Hazardous	Previously List II Substance
Copper sulphate	007758-98-7	Non-Hazardous	Previously List II Substance
Coumaphos	000056-72-4	Hazardous	Previously List I Substance
Creosote	8001-58-9	Hazardous	Previously List I Substance (Subject to Review)
Cresols	100085-12-9	Non-Hazardous	Previously List II Substance (Subject to Review)
Cresyldiphenyl-phosphate	026444-49-5	Hazardous	Previously List I Substance
Cresylic acid	000095-48-7	Non-Hazardous	Previously List II Substance
Cufraneb	11096-18-7	Non-Hazardous	Previously List II Substance
Cupric ammonium carbonate	033113-08-5	Non-Hazardous	Previously List II Substance
Cyanazine	021725-46-2	Hazardous	Previously List I Substance
Cyclooctasulphur	10544-50-0	Undetermined	Previously Neither List I or II (Determination Required)
Cycloxydim	101205-02-1	Non-Hazardous	Previously List II Substance
Cymoxanil	057966-95-7	Non-Hazardous	Previously List II Substance
Cypermethrin	052315-07-8	Hazardous	Previously List I Substance
Cyproconazole	094361-06-5	Hazardous	Previously List I Substance
Cyromazine	66215-27-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Daminozide	001596-84-5	Non-Hazardous	Previously List II Substance
Dazomet	000533-74-4	Non-Hazardous	Previously List II Substance
DDE	72-55-9	Hazardous	Previously List I Substance (Subject to Review)
DDT	000050-29-3	Hazardous	Previously List I Substance
Decamethyl cyclopentasiloxane	541-02-6	Non-Hazardous	Previously List II Substance (Subject to Review)
Decyl sulfate, sodium salt	142-87-0	Undetermined	Previously Neither List I or II (Determination Required)
Deltamethrin	052918-63-5	Hazardous	Previously List I Substance
Demeton	008000-97-3	Hazardous	Previously List I Substance
Demeton-s-methyl	919-86-8	Hazardous	Previously List I Substance (Subject to Review)
Demeton-S-methyl sulphone	017040-19-6	Hazardous	Previously List I Substance
Desmedipham	013684-56-5	Non-Hazardous	Previously List II Substance

Desmetryn	001014-69-3	Non-Hazardous	Previously List II Substance
Di(2-ethylhexyl) phthalate	117-81-7	Hazardous	Previously List I Substance (Subject to Review)
Di/triamine ethoxylate		Undetermined	Previously Neither List I or II (Determination Required)
Diazinon	000333-41-5	Hazardous	Previously List I Substance
Dibromoacetonitrile	3252-43-5	Hazardous	Previously List I Substance (Subject to Review)
Dibutyl bis(oxyauroyl)tin	77-58-7	Hazardous	Previously List I Substance
Dibutyl phthalate	84-74-2	Hazardous	Previously List I Substance (Subject to Review)
Dibutyltin oxide	000818-08-6	Hazardous	Previously List I Substance
Dibutyltin salts	14488-53-0	Hazardous	Previously List I Substance
Dicamba	001918-00-9	Non-Hazardous	Previously List II Substance
Dichlobenil	001194-65-6	Hazardous	Previously List I Substance
Dichlofluanid	001085-98-9	Hazardous	Previously List I Substance
Dichloroacetic acid	79-43-6	Hazardous	Previously List I Substance (Subject to Review)
Dichloroacetonitrile	3018-12-0	Hazardous	Previously List I Substance (Subject to Review)
Dichloroaniline	000095-76-1	Hazardous	Previously List I Substance
Dichlorobenzidine	000091-94-1	Hazardous	Previously List I Substance
Dichlorobromomethane	75-27-4	Hazardous	Previously List I Substance (Subject to Review)
Dichloromethane	000075-09-2	Hazardous	Previously List I Substance
Dichloronitrobenzene (all isomers)	3209-22-1 or 618-62-2	Hazardous	Previously List I Substance
Dichlorophen	000097-23-4	Hazardous	Previously List I Substance
Dichlorprop	000120-36-5	Hazardous	Previously List I Substance
Dichlorprop-p	15165-67-0	Hazardous	Previously List I Substance (Subject to Review)
Dichlorvos	000062-73-7	Hazardous	Previously List I Substance
Dichromate (e.g. sodium dichromate)	13907-47-6	Non-Hazardous	Previously List II Substance (Subject to Review)
Diclobutrazol	075736-33-3	Hazardous	Previously List I Substance
Diclofop-methyl	051338-27-3	Hazardous	Previously List I Substance
Dicloran	000099-30-9	Hazardous	Previously List I Substance
Dicofol	000115-32-2	Hazardous	Previously List I Substance
Dieldrin	000060-57-1	Hazardous	Previously List I Substance
Dienochlor	002227-17-0	Hazardous	Previously List I Substance
Diesel		Hazardous	Previously List I Substance (Subject to Review)
Diethanolamine	111-42-2	Undetermined	Previously Neither List I or II (Determination Required)
Diethyl phthalate	84-66-2	Undetermined	Previously Neither List I or II (Determination Required)
Diethylene glycol	000112-34-5	Undetermined	Previously Neither List I or II (Determination Required)
Difenoconazole	119446-68-3	Hazardous	Previously List I Substance

Difenzoquat	049866-87-7	Non-Hazardous	Previously List II Substance
Diflubenzuron	035367-38-5	Hazardous	Previously List I Substance
Diflufenican	083164-33-4	Hazardous	Previously List I Substance
Difluoromethane	75-10-5	Hazardous	Previously List I Substance (Subject to Review)
Dikegulac	018467-77-1	Non-Hazardous	Previously List II Substance
Dimethoate	000060-51-5	Hazardous	Previously List I Substance
Dimethomorph	110488-70-5	Hazardous	Previously List I Substance
Dimethylethylbenzene	98-06-6	Hazardous	Previously List I Substance (Subject to Review)
Dinocap	039300-45-3	Non-Hazardous	Previously List II Substance
Dioxins	N/a (Group)	Hazardous	Previously List I Substance
Diphenamid	000957-51-7	Non-Hazardous	Previously List II Substance
Diphenyl amine	000122-39-4	Non-Hazardous	Previously List II Substance
Diphenyl chloroarsine	000712-48-1	Hazardous	Previously List I Substance
Dipotassium phosphate	7758-11-4	Non-Hazardous	Previously List II Substance (Subject to Review)
Diquat	002764-72-9	Non-Hazardous	Previously List II Substance
Disulfoton	000298-04-4	Hazardous	Previously List I Substance
Dithianon	003347-22-6	Non-Hazardous	Previously List II Substance
Diuron	000330-54-1	Hazardous	Previously List I Substance
Dodecanoic acid	143-07-7	Undetermined	Previously Neither List I or II (Determination Required)
Dodecyl benzene	000123-01-3	Hazardous	Previously List I Substance
Dodemorph	001593-77-7	Non-Hazardous	Previously List II Substance
Dodine	002439-10-3	Non-Hazardous	Previously List II Substance
Doramectin	117704-25-3	Non-Hazardous	Previously List II Substance (Subject to Review)
Drazoxolon	051450-97-6	Hazardous	Previously List I Substance
Elemental phosphorus	7723-14-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Emamectin benzoate	155569-91-8, 137512-74-4, 179607-18-2	Non-Hazardous	Previously List II Substance (Subject to Review)
Endosulfan	000115-29-7	Hazardous	Previously List I Substance
Endrin	000072-20-8	Hazardous	Previously List I Substance
Eosin (C ₂₀ H ₈ Br ₄ O ₅)	15086-94-9; 17372-87-1	Undetermined	Previously Neither List I or II (Determination Required)
Epichlorohydrin	000106-89-8	Hazardous	Previously List I Substance
Epoxiconazole	133855-98-8	Hazardous	Previously List I Substance
Esfenvalerate	066230-04-4	Hazardous	Previously List I Substance
Ethyl tert-butyl ether (ETBE)	637-92-3	Non-Hazardous	Previously List II Substance (Subject to Review)
Ethanol (ethyl alcohol)	000064-17-5	Undetermined	Previously Neither List I or II (Determination Required)
Ethanolamine	141-43-5	Undetermined	Previously Neither List I or II (Determination Required)
Ethinyl oestradiol	000057-63-6	Undetermined	Previously Neither List I or II (Determination Required)

Ethirimol	023947-60-6	Non-Hazardous	Previously List II Substance
Ethofumesate	026225-79-6	Non-Hazardous	Previously List II Substance
Ethoprophos	013194-48-4	Hazardous	Previously List I Substance
Ethyl aminobenzoate (benzocaine)	94-09-7	Undetermined	Previously Neither List I or II (Determination Required)
Ethyl dichloroarsine	000598-14-1	Hazardous	Previously List I Substance
Ethylbenzene	000100-41-4	Hazardous	Previously List I Substance
Ethylene	74-85-1	Undetermined	Previously Neither List I or II (Determination Required)
Ethylene diamine tetra acetic acid (EDTA)	000060-00-4	Undetermined	Previously Neither List I or II (Determination Required)
Ethylene glycol	000107-21-1	Undetermined	Previously Neither List I or II (Determination Required)
Etridiazole	002593-15-9	Hazardous	Previously List I Substance
Fenamidone	161326-34-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Fenarimol	060168-88-9	Hazardous	Previously List I Substance
Fenbutatin oxide	013356-08-6	Hazardous	Previously List I Substance
Fenchlorphos	000299-84-3	Hazardous	Previously List I Substance
Fenhexamid	126883-17-8	Hazardous	Previously List I Substance (Subject to Review)
Fenitrothion	000122-14-5	Hazardous	Previously List I Substance
Fenoxaprop-ethyl	082110-72-3	Hazardous	Previously List I Substance
Fenoxaprop-P-ethyl	071283-80-2	Hazardous	Previously List I Substance
Fenpiclonil	074738-17-3	Hazardous	Previously List I Substance
Fenpropathrin	039515-41-8	Non-Hazardous	Previously List II Substance
Fenpropidin	067306-00-7	Non-Hazardous	Previously List II Substance
Fenpropimorph	067306-03-0	Non-Hazardous	Previously List II Substance
Fenpyroximate	134098-61-6	Non-Hazardous	Previously List II Substance (Subject to Review)
Fenthion	000055-38-9	Hazardous	Previously List I Substance
Fentin acetate	000900-95-8	Hazardous	Previously List I Substance
Fenuron	000101-42-8	Non-Hazardous	Previously List II Substance
Fenvalerate	051630-58-1	Hazardous	Previously List I Substance
Ferbam	014484-64-1	Non-Hazardous	Previously List II Substance
Ferric phosphate	10045-86-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Ferrous sulphate	7720-78-7	Undetermined	Previously Neither List I or II (Determination Required)
Flamprop-M-isopropyl	052756-22-6	Hazardous	Previously List I Substance
Flonicamid	158062-67-0	Hazardous	Previously List I Substance (Subject to Review)
Florasulam	145701-23-1	Hazardous	Previously List I Substance (Subject to Review)
Fluazifop-P-butyl	079241-46-6	Non-Hazardous	Previously List II Substance
Fluazinam	079622-59-6	Hazardous	Previously List I Substance
Flucythrinate	070124-77-5	Hazardous	Previously List I Substance

Flufenacet	142459-58-3	Hazardous	Previously List I Substance (Subject to Review)
Flumethrin	069770-45-2	Hazardous	Previously List I Substance
Fluopicolide	239110-15-7	Hazardous	Previously List I Substance (Subject to Review)
Fluoranthene	000206-44-0	Hazardous	Previously List I Substance
Fluorascein (uranine) (C ₂₀ H ₁₀ Na ₂ O ₅)	518-47-8	Undetermined	Previously Neither List I or II (Determination Required)
Fluorides	16974-48-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Fluorosurfactants	641620-35-1; 620961-93-5; 275364-64-2	Hazardous	Previously List I Substance (Subject to Review)
Fluroglycofen-ethyl	077501-90-7	Hazardous	Previously List I Substance
Fluroxypyr	069377-81-7	Hazardous	Previously List I Substance
Flusilazole	085509-19-9	Hazardous	Previously List I Substance
Flutolanil	66332-96-5	Hazardous	Previously List I Substance (Subject to Review)
Flutriafol	076674-21-0	Hazardous	Previously List I Substance
Fomesafen	072178-02-0	Hazardous	Previously List I Substance
Fonofos	000944-22-9	Hazardous	Previously List I Substance
Formaldehyde	000050-00-0	Non-Hazardous	Previously List II Substance
Fosetyl-aluminium	039148-24-8	Non-Hazardous	Previously List II Substance
Fosthiazate	98886-44-3	Hazardous	Previously List I Substance (Subject to Review)
Fuberidazole	003878-19-1	Non-Hazardous	Previously List II Substance
Fuel oil		Hazardous	Previously List I Substance (Subject to Review)
Furalaxyl	057646-30-7	Non-Hazardous	Previously List II Substance
Gibberellic acid	000077-06-5	Non-Hazardous	Previously List II Substance
Gibberellins	173269-32-4	Non-Hazardous	Previously List II Substance
Gluconate	526-95-4	Undetermined	Previously Neither List I or II (Determination Required)
Glucose	50-99-7	Undetermined	Previously Neither List I or II (Determination Required)
Glufosinate-ammonium	77182-82-2	Hazardous	Previously List I Substance (Subject to Review)
Gluteraldehyde	111-30-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Glycerol	56-81-5	Undetermined	Previously Neither List I or II (Determination Required)
Glycerol tripolylactate		Undetermined	Previously Neither List I or II (Determination Required)
Glyphosate	001071-83-6	Non-Hazardous	Previously List II Substance
Guazatine	108173-90-6	Non-Hazardous	Previously List II Substance
Heptachlor	000076-44-8	Hazardous	Previously List I Substance
Heptenophos	034783-40-9	Hazardous	Previously List I Substance
Hexachlorobenzene	000118-74-1	Hazardous	Previously List I Substance
Hexachlorobutadiene (HCBD)	000087-68-3	Hazardous	Previously List I Substance
Hexachlorocyclohexane	000058-89-9	Hazardous	Previously List I Substance

Hexachloroethane	000067-72-1	Hazardous	Previously List I Substance
Hexachloronaphthalene	001335-87-1	Hazardous	Previously List I Substance
Hexachloronorborniadiene	003389-71-7 and 028680- 44-6	Hazardous	Previously List I Substance
Hexaconazole	079983-71-4	Hazardous	Previously List I Substance
Hexamethylene tetramine	100-97-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Hexazinone	051235-04-2	Non-Hazardous	Previously List II Substance
Hexylene glycol	000107-41-5	Undetermined	Previously Neither List I or II (Determination Required)
Hydrazine	302-01-2	Hazardous	Previously List I Substance (Subject to Review)
Hydrobromic acid	10035-10-6	Undetermined	Previously Neither List I or II (Determination Required)
Hydrocarbon oil	8020-83-5	Hazardous	Previously List I Substance (Subject to Review)
Hydrogen peroxide	7722-84-1	Undetermined	Previously Neither List I or II (Determination Required)
Hydroquinone	123-31-9	Undetermined	Previously Neither List I or II (Determination Required)
Hydroxyacetic acid	79-14-1	Undetermined	Previously Neither List I or II (Determination Required)
Hymexazol	010004-44-1	Non-Hazardous	Previously List II Substance
Imazalil	035554-44-0	Hazardous	Previously List I Substance
Imazamethabenz-methyl	081405-85-8	Non-Hazardous	Previously List II Substance
Imazaquin	081335-37-7	Non-Hazardous	Previously List II Substance
Imidacloprid	138261-41-3	Hazardous	Previously List I Substance
Indane (C ₉ H ₁₀)	496-11-7	Hazardous	Previously List I Substance (Subject to Review)
Indeno(1,2,3-cd)pyrene	000193-39-5	Hazardous	Previously List I Substance
Iodide	20461-54-5	Undetermined	Previously Neither List I or II (Determination Required)
Iodine	007553-56-2	Non-Hazardous	Previously List II Substance
Iodosulfuron methyl sodium	144550-06-01	Hazardous	Previously List I Substance (Subject to Review)
Ioxynil	001689-83-4	Hazardous	Previously List I Substance
Iprodione	036734-19-7	Hazardous	Previously List I Substance
Iron	7439-89-6	Undetermined	Previously Neither List I or II (Determination Required)
Isodrin	000465-73-6	Hazardous	Previously List I Substance
Isopropanol	000067-63-0	Undetermined	Previously Neither List I or II (Determination Required)
Isopropylbenzene	98-82-8	Hazardous	Previously List I Substance (Subject to Review)
Isoproturon	034123-59-6	Non-Hazardous	Previously List II Substance
Isoxaben	082558-50-7	Non-Hazardous	Previously List II Substance
Ivermectin	70288-86-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Kerosene	8008-20-6	Hazardous	Previously List I Substance (Subject to Review)

Kresoxim-methyl	143390-89-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Lactic acid	50-21-5	Undetermined	Previously Neither List I or II (Determination Required)
Lambda-cyhalothrin	091465-08-6	Hazardous	Previously List I Substance
Lauryl alcohol	112-53-8	Undetermined	Previously Neither List I or II (Determination Required)
Lenacil	002164-08-1	Non-Hazardous	Previously List II Substance
Lime (calcium oxide)	1305-78-8	Undetermined	Previously Neither List I or II (Determination Required)
Linear alkyl benzene	134211-53-3; 115963-94-5; 115733-08-9; 96792-49-3	Hazardous	Previously List I Substance (Subject to Review)
Linuron	000330-55-2	Hazardous	Previously List I Substance
Lithium	7439-93-2	Undetermined	Previously Neither List I or II (Determination Required)
Magnesium	7439-95-4	Undetermined	Previously Neither List I or II (Determination Required)
Magnesium peroxide	1335-26-8	Undetermined	Previously Neither List I or II (Determination Required)
Magnesium sulphate	10034-99-8	Undetermined	Previously Neither List I or II (Determination Required)
Malachite Green	000569-64-2	Hazardous	Previously List I Substance
Malathion	000121-75-5	Hazardous	Previously List I Substance
Maleic hydrazide	000123-33-1	Non-Hazardous	Previously List II Substance
Mancozeb	008018-01-7	Non-Hazardous	Previously List II Substance
Maneb	012427-38-2	Non-Hazardous	Previously List II Substance
Manganese	7439-96-5	Undetermined	Previously Neither List I or II (Determination Required)
Mecoprop	93-65-2	Hazardous	Previously List I Substance (Subject to Review)
Mecoprop-p	16484-77-8	Hazardous	Previously List I Substance (Subject to Review)
Mepanipyrim	110235-47-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Mephosfolan	000950-10-7	Hazardous	Previously List I Substance
Mepiquat	024307-26-4	Non-Hazardous	Previously List II Substance
Mercuric oxide	021908-53-2	Hazardous	Previously List I Substance
Mercury compounds	7439-97-6	Hazardous	Previously List I Substance
Metalaxyl	057837-19-1	Non-Hazardous	Previously List II Substance
Metaldehyde	009002-91-9	Non-Hazardous	Previously List II Substance
Metamitron	041394-05-2	Non-Hazardous	Previously List II Substance
Metam-sodium	000137-42-8	Non-Hazardous	Previously List II Substance
Metazachlor	067129-08-2	Hazardous	Previously List I Substance
Methabenzthiazuron	018691-97-9	Non-Hazardous	Previously List II Substance
Methamidophos	010265-92-6	Hazardous	Previously List I Substance
Methidathion	000950-37-8	Hazardous	Previously List I Substance
Methiocarb	002032-65-7	Non-Hazardous	Previously List II Substance

Methyl ethyl ketone	000078-93-3	Undetermined	Previously Neither List I or II (Determination Required)
Methyl methacrylate	000080-62-6	Undetermined	Previously Neither List I or II (Determination Required)
Methyl tertiary butyl ether	001634-0404	Non-Hazardous	Previously List II Substance
Metoxuron	019937-59-8	Hazardous	Previously List I Substance
Metribuzin	021087-64-9	Non-Hazardous	Previously List II Substance
Metsulfuron-methyl	074223-64-6	Non-Hazardous	Previously List II Substance
Mevinphos	007786-34-7	Hazardous	Previously List I Substance
Mineral naphthenic oil		Hazardous	Previously List I Substance (Subject to Review)
Mineral oil	008012-95-1	Hazardous	Previously List I Substance
Molybdenum	7439-98-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Monolinuron	001746-81-2	Hazardous	Previously List I Substance
Monopotassium phosphate	7778-77-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Morphine	57-27-2	Undetermined	Previously Neither List I or II (Determination Required)
Myclobutanil	088671-89-0	Hazardous	Previously List I Substance
Myristyl alcohol	112-72-1	Undetermined	Previously Neither List I or II (Determination Required)
<i>n</i> -(4-Bromophenyl)methyl-1,2-ethanediamine	033855-47-9	Hazardous	Previously List I Substance
Nabam	000142-59-6	Non-Hazardous	Previously List II Substance
<i>N</i> -Alkylated tolytriazole		Undetermined	Previously Neither List I or II (Determination Required)
Naphthalene	000091-20-3	Hazardous	Previously List I Substance
Napropamide	015299-99-7	Non-Hazardous	Previously List II Substance
<i>N</i> -Hydroxyethylenediamine triacetic acid trisodium salt	139-89-9	Undetermined	Previously Neither List I or II (Determination Required)
Nickel	7440-02-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Nicotine	000054-11-5	Non-Hazardous	Previously List II Substance
Nitric acid	7697-37-2	Undetermined	Previously Neither List I or II (Determination Required)
Nitrilotriacetic acid	000139-13-9	Undetermined	Previously Neither List I or II (Determination Required)
Nitrites	14797-65-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Nitrothal-isopropyl	010552-74-6	Non-Hazardous	Previously List II Substance
Nonylphenol	084852-15-3; 025154-52-3; 000104-40-5; 000136-83-4	Undetermined	Previously Neither List I or II (Determination Required)
Nonylphenol ethoxylate	9016-45-9	Undetermined	Previously Neither List I or II (Determination Required)
<i>n</i> -Propylbenzene	103-65-1	Hazardous	Previously List I Substance (Subject to Review)
Nuarimol	063284-71-9	Hazardous	Previously List I Substance

Octadecapentabromodiphenyl ether	N/a (Group)	Hazardous	Previously List I Substance
Octhilinone	026530-20-1	Non-Hazardous	Previously List II Substance
Octyl sulfate, sodium salt	142-31-4	Undetermined	Previously Neither List I or II (Determination Required)
Octylphenol	027193-28-8; 000140-66-9; 000949-13-3; 001806-26-4; 003884-95-5	Undetermined	Previously Neither List I or II (Determination Required)
Octylphenol ethoxylate	9036-19-5	Undetermined	Previously Neither List I or II (Determination Required)
Oestrone	000053-16-7	Undetermined	Previously Neither List I or II (Determination Required)
Ofurace	058810-48-3	Hazardous	Previously List I Substance
Omethoate	001113-02-6	Hazardous	Previously List I Substance
Organic acids (e.g. Humic acid)		Undetermined	Previously Neither List I or II (Determination Required)
Organo-silicons		Non-Hazardous	Previously List II Substance (Subject to Review)
Ortho-phenylphenol	90-43-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Orthophosphate	14265-44-2	Non-Hazardous	Previously List II Substance (Subject to Review)
Oryzalin	019044-88-3	Non-Hazardous	Previously List II Substance
Oxadiazon	019666-30-9	Hazardous	Previously List I Substance
Oxadixyl	077732-09-3	Non-Hazardous	Previously List II Substance
Oxamyl	023135-22-0	Non-Hazardous	Previously List II Substance
Oxine-copper	010380-28-6	Non-Hazardous	Previously List II Substance
Oxycarboxin	005259-88-1	Non-Hazardous	Previously List II Substance
Oxydemeton-methyl	000301-12-2	Hazardous	Previously List I Substance
Oxy pyrimidine		Undetermined	Previously Neither List I or II (Determination Required)
Oxytetracycline hydrochloride powder	2058-46-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Paclobutrazol	076738-62-0	Hazardous	Previously List I Substance
Paraffin	8002-74-2	Hazardous	Previously List I Substance (Subject to Review)
Paraquat	004685-14-7	Non-Hazardous	Previously List II Substance
Parathion	000056-38-2	Hazardous	Previously List I Substance
Parathion-methyl	000298-00-0	Hazardous	Previously List I Substance
PCBs	1336-36-3	Hazardous	Previously List I Substance
PD2000 Poly (1,4-di(4-N-methylpyridinyl))-2,3-di(4-(1-formylphenyl)butylidene)		Undetermined	Previously Neither List I or II (Determination Required)
Penconazole	066246-88-6	Hazardous	Previously List I Substance
Pencycuron	66063-05-6	Hazardous	Previously List I Substance (Subject to Review)
Pendimethalin	040487-42-1	Non-Hazardous	Previously List II Substance
Pentachlorobenzene	000608-93-5	Hazardous	Previously List I Substance

Pentachloroethane	000076-01-7	Hazardous	Previously List I Substance
Pentachlorophenol (PCP)	000087-86-5	Hazardous	Previously List I Substance
Pentafluoroethane	354-33-2	Hazardous	Previously List I Substance (Subject to Review)
Pentanochlor	002307-68-8	Hazardous	Previously List I Substance
Peracetic acid	000079-21-0	Non-Hazardous	Previously List II Substance
Permethrin	052645-53-1	Hazardous	Previously List I Substance
Petrol	8006-61-9	Hazardous	Previously List I Substance (Subject to Review)
Petroleum distillate		Hazardous	Previously List I Substance (Subject to Review)
Petroleum oil	008002-05-9	Hazardous	Previously List I Substance
Phenanthrene	85-01-8	Hazardous	Previously List I Substance (Subject to Review)
Phenimedipham	13684-63-4	Non-Hazardous	Previously List II Substance (Subject to Review)
Phenmedipham	013684-63-4	Non-Hazardous	Previously List II Substance
Phenol	000108-95-2	Non-Hazardous	Previously List II Substance
Phenyl isocyanate	103-71-9	Undetermined	Previously Neither List I or II (Determination Required)
Phenylmercury acetate	000062-38-4	Hazardous	Previously List I Substance
Phorate	000298-02-2	Hazardous	Previously List I Substance
Phosalone	002310-17-0	Hazardous	Previously List I Substance
Phosphate	14265-44-2	Non-Hazardous	Previously List II Substance (Subject to Review)
Phosphate ester		Hazardous	Previously List I Substance (Subject to Review)
Phosphoric acid	007664-38-2	Non-Hazardous	Previously List II Substance
Picloram	01/02/1918	Hazardous	Previously List I Substance (Subject to Review)
Pirimicarb	023103-98-2	Non-Hazardous	Previously List II Substance
Pirimiphos-methyl	029232-93-7	Hazardous	Previously List I Substance
Poly (hexamethylene) biguanide hydrochloride	32289-58-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Poly[oxyethylene (dimethyliminio) ethylene dimethyliminio) ethylene dichloride]	31075-24-8 or 31512-74-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Polyglycol		Undetermined	Previously Neither List I or II (Determination Required)
Polysaccharide	11138-66-2	Undetermined	Previously Neither List I or II (Determination Required)
Polyvinyl alcohol		Undetermined	Previously Neither List I or II (Determination Required)
Ponazuril / toltrazuril sulfone	69004-04-2	Hazardous	Previously List I Substance (Subject to Review)
Potassium	7440-09-7	Undetermined	Previously Neither List I or II (Determination Required)
Potassium acetate	000127-08-2	Undetermined	Previously Neither List I or II (Determination Required)

Potassium aluminium chloride	74978-20-4	Undetermined	Previously Neither List I or II (Determination Required)
Potassium formate	000590-29-4	Undetermined	Previously Neither List I or II (Determination Required)
Potassium hydroxide	001310-58-3	Undetermined	Previously Neither List I or II (Determination Required)
Potassium metasilicate	10006-28-7	Undetermined	Previously Neither List I or II (Determination Required)
Potassium permanganate	007722-64-7	Undetermined	Previously Neither List I or II (Determination Required)
Potassium peroxomonosulphate	70693-62-8	Hazardous	Previously List I Substance (Subject to Review)
Potassium tolyltriazole	64665-53-8	Undetermined	Previously Neither List I or II (Determination Required)
Praziquantel	55268-74-1	Non-Hazardous	Previously List II Substance (Subject to Review)
Prochloraz	067747-09-5	Hazardous	Previously List I Substance
Prometryn	007287-19-6	Non-Hazardous	Previously List II Substance
Propachlor	001918-16-7	Hazardous	Previously List I Substance
Propamocarb hydrochloride	025606-41-1	Non-Hazardous	Previously List II Substance
Propanil	000709-98-8	Hazardous	Previously List I Substance
Propaquizafop	111479-05-1	Hazardous	Previously List I Substance
Propetamphos	031218-83-4	Hazardous	Previously List I Substance
Propham	000122-42-9	Non-Hazardous	Previously List II Substance
Propiconazole	060207-90-1	Hazardous	Previously List I Substance
Propoxur	000114-26-1	Non-Hazardous	Previously List II Substance
Propylene glycol	000057-55-6	Undetermined	Previously Neither List I or II (Determination Required)
Propyzamide	023950-58-5	Hazardous	Previously List I Substance
Prosulfuron	094125-34-5	Hazardous	Previously List I Substance
Prothioconazole	178928-70-6	Hazardous	Previously List I Substance (Subject to Review)
Ptaquiloside	87625-62-5	Undetermined	Previously Neither List I or II (Determination Required)
Pymetrozine	12332-89-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Pyraflufen-ethyl	129630-19-9	Hazardous	Previously List I Substance (Subject to Review)
Pyrazophos	013457-18-6	Hazardous	Previously List I Substance
Pyrethrins	008003-34-7	Non-Hazardous	Previously List II Substance
Pyridate	055512-33-9	Hazardous	Previously List I Substance
Pyrifenox	088283-41-4	Hazardous	Previously List I Substance
Quinalphos	013593-03-8	Hazardous	Previously List I Substance
Quinoclamine	2797-51-5	Hazardous	Previously List I Substance (Subject to Review)
Quinomethionate	002439-01-2	Non-Hazardous	Previously List II Substance
Quintozene	000082-68-8	Hazardous	Previously List I Substance
Quizalofop-ethyl	076578-14-8	Hazardous	Previously List I Substance
Resmethrin	010453-86-8	Non-Hazardous	Previously List II Substance

Rhodamine B (C ₂₈ H ₃₁ ClN ₂ O ₃)	81-88-9	Undetermined	Previously Neither List I or II (Determination Required)
Rhodamine WT	37299-86-8	Undetermined	Previously Neither List I or II (Determination Required)
Rimsulfuron	122931-48-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Rotenone	000083-79-4	Non-Hazardous	Previously List II Substance
Salt of C-isodecyl ester	37294-49-8	Undetermined	Previously Neither List I or II (Determination Required)
Salts of C ₁₀₋₁₆ alkyl ethers	68585-34-2	Undetermined	Previously Neither List I or II (Determination Required)
Sethoxydim	074051-80-2	Non-Hazardous	Previously List II Substance
Silver	7440-22-4	Non-Hazardous	Previously List II Substance (Subject to Review)
Simazine	000122-34-9	Hazardous	Previously List I Substance
Sodium	7440-23-5	Undetermined	Previously Neither List I or II (Determination Required)
Sodium 1-hydroxyethylidene- 1,1-diphosphonate	29329-71-3	Hazardous	Previously List I Substance (Subject to Review)
Sodium acetate	000127-09-3	Undetermined	Previously Neither List I or II (Determination Required)
Sodium alkyl ether sulphate		Undetermined	Previously Neither List I or II (Determination Required)
Sodium bisulphate	007631-90-5	Undetermined	Previously Neither List I or II (Determination Required)
Sodium carbonate	000497-19-8	Undetermined	Previously Neither List I or II (Determination Required)
Sodium chlorate	007775-09-9	Non-Hazardous	Previously List II Substance
Sodium chloride	7647-14-5	Undetermined	Previously Neither List I or II (Determination Required)
Sodium dodecylbenzene sulfonate	25155-30-0	Undetermined	Previously Neither List I or II (Determination Required)
Sodium formate	000141-53-7	Undetermined	Previously Neither List I or II (Determination Required)
Sodium hydroxide	001310-73-2	Undetermined	Previously Neither List I or II (Determination Required)
Sodium hypochlorite	010022-70-5 or 007681-52-9	Non-Hazardous	Previously List II Substance
Sodium metabisulfite	7681-57-4	Undetermined	Previously Neither List I or II (Determination Required)
Sodium metasilicate	6834-92-0	Undetermined	Previously Neither List I or II (Determination Required)
Sodium mono & didacyl disulfonated diphenyl oxide	119345-04-9	Undetermined	Previously Neither List I or II (Determination Required)
Sodium monochloroacetate	003926-62-3	Non-Hazardous	Previously List II Substance
Sodium nitrate	7631-99-4	Undetermined	Previously Neither List I or II (Determination Required)
Sodium persulphate	7775-27-1	Undetermined	Previously Neither List I or II (Determination Required)
Sodium phosphate	7601-54-9	Non-Hazardous	Previously List II Substance (Subject to Review)

Sodium p-toluenesulfonchloramide (Chloramine T)	127-65-1	Hazardous	Previously List I Substance (Subject to Review)
Sodium salt of nitrilo acetic acid	2531-88-6	Undetermined	Previously Neither List I or II (Determination Required)
Sodium silicate	001344-09-8	Undetermined	Previously Neither List I or II (Determination Required)
Sodium tetraborate	001330-43-4	Non-Hazardous	Previously List II Substance
Sodium thiosulphate	7772-98-7	Undetermined	Previously Neither List I or II (Determination Required)
Sodium tripolyphosphate	7758-29-4	Non-Hazardous	Previously List II Substance (Subject to Review)
Soluble copper compounds	N/a (Group)	Non-Hazardous	Previously List II Substance
Sorbitol cysteinate		Undetermined	Previously Neither List I or II (Determination Required)
Spinosyn A	131929-60-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Spinosyn D	131929-63-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Spiroxamine	118134-30-8	Non-Hazardous	Previously List II Substance (Subject to Review)
Styrene	000100-42-5	Hazardous	Previously List I Substance
Sulphamic Acid	5329-14-6	Undetermined	Previously Neither List I or II (Determination Required)
Sulphate	14808-79-8	Undetermined	Previously Neither List I or II (Determination Required)
Sulphodamine B (C ₂₇ H ₃₀ N ₂ O ₇ S ₂)	3520-42-1	Undetermined	Previously Neither List I or II (Determination Required)
Sulphodamine G (C ₂₅ H ₂₆ N ₂ O ₇ S ₂)	5873-16-5	Undetermined	Previously Neither List I or II (Determination Required)
Sulphonated cod liver oil	97553-00-9, 90989-99-4, 68916-57-4	Undetermined	Previously Neither List I or II (Determination Required)
Sulphur	63705-05-5	Undetermined	Previously Neither List I or II (Determination Required)
Sulphuric acid	007664-93-9	Undetermined	Previously Neither List I or II (Determination Required)
Synthetic latex		Undetermined	Previously Neither List I or II (Determination Required)
Tar acids	438544-91-3	Non-Hazardous	Previously List II Substance
Tar oil	008001-58-9	Hazardous	Previously List I Substance
Tau-fluvalinate	102851-06-9	Hazardous	Previously List I Substance (Subject to Review)
Tebuconazole	107534-96-3	Hazardous	Previously List I Substance
Tebufenpyrad	119168-77-3	Hazardous	Previously List I Substance (Subject to Review)
Tebutam	035256-85-0	Non-Hazardous	Previously List II Substance
Teflubenzuron	083121-18-0	Hazardous	Previously List I Substance
Tefluthrin	079538-32-2	Hazardous	Previously List I Substance
Tellurium	13494-80-9	Non-Hazardous	Previously List II Substance (Subject to Review)
Tepraloxydim	149979-41-9	Hazardous	Previously List I Substance (Subject to Review)

Terbacil	005902-51-2	Hazardous	Previously List I Substance
Terbutylazine	005915-41-3	Hazardous	Previously List I Substance
Terbutryn	000886-50-0	Non-Hazardous	Previously List II Substance
Tetrabromoethane	000079-27-6	Hazardous	Previously List I Substance
Tetrabutyltin	001461-25-2	Hazardous	Previously List I Substance
Tetrachlorobenzene (all isomers)	012408-10-5	Hazardous	Previously List I Substance
Tetrachloroethylene	000127-18-4	Hazardous	Previously List I Substance
Tetrachlorvinphos	022248-79-9	Hazardous	Previously List I Substance
Tetradifon	000116-29-0	Hazardous	Previously List I Substance
Tetrapotassium (1-hydroxyethylidene) biphosphonate	14860-53-8	Hazardous	Previously List I Substance (Subject to Review)
Tetrapotassium pyrophosphate	7320-34-5	Non-Hazardous	Previously List II Substance (Subject to Review)
Thallium	7440-28-0	Non-Hazardous	Previously List II Substance (Subject to Review)
Thiabendazole	000148-79-8	Non-Hazardous	Previously List II Substance
Thiacloprid	111988-49-9	Hazardous	Previously List I Substance (Subject to Review)
Thifensulfuron-methyl	079277-27-3	Non-Hazardous	Previously List II Substance
Thiocyanate	463-56-9	Undetermined	Previously Neither List I or II (Determination Required)
Thiodicarb	059669-26-0	Non-Hazardous	Previously List II Substance
Thiometon	000640-15-3	Hazardous	Previously List I Substance
Thiophanate-methyl	023564-05-8	Hazardous	Previously List I Substance
Thiophosphoric acid	13598-51-1	Hazardous	Previously List I Substance (Subject to Review)
Thiram	000137-26-8	Hazardous	Previously List I Substance
Titanium	7440-32-6	Non-Hazardous	Previously List II Substance (Subject to Review)
Tolclofos-methyl	057018-04-9	Hazardous	Previously List I Substance
Toltrazuril	69004-03-1	Hazardous	Previously List I Substance (Subject to Review)
Toluene	000108-88-3	Hazardous	Previously List I Substance
Tolyfluanid	731-27-1	Hazardous	Previously List I Substance (Subject to Review)
Tralkoxydim	087820-88-0	Non-Hazardous	Previously List II Substance
Transformer oil		Hazardous	Previously List I Substance (Subject to Review)
Triadimefon	043121-43-3	Hazardous	Previously List I Substance
Triadimenol	055219-65-3	Hazardous	Previously List I Substance
Triallate	002303-17-5	Hazardous	Previously List I Substance
Triasulfuron	082097-50-5	Hazardous	Previously List I Substance
Triazamate	11243-82-5	Non-Hazardous	Previously List II Substance (Subject to Review)
Triazophos	024017-47-8	Hazardous	Previously List I Substance
Triazoxide	072459-58-6	Hazardous	Previously List I Substance
Tribenuron-methyl	101200-48-0	Non-Hazardous	Previously List II Substance

Tributyl-phosphate	000126-73-8	Hazardous	Previously List I Substance
Tributyltin oxide (TBTO)	000056-35-9	Hazardous	Previously List I Substance
Tricaine methanosulphonate	886-86-2	Undetermined	Previously Neither List I or II (Determination Required)
Trichlorfon	000052-68-6	Hazardous	Previously List I Substance
Trichloroacetic acid	000076-03-9	Hazardous	Previously List I Substance
Trichloroacetonitrile	545-06-2	Hazardous	Previously List I Substance (Subject to Review)
Trichloroethanal	000075-87-6	Hazardous	Previously List I Substance
Trichloroethane (TCA)	025323-89-1	Hazardous	Previously List I Substance
Trichloroethylene	000079-01-6	Hazardous	Previously List I Substance
Trichlorophenol (all isomers)	025167-82-2	Hazardous	Previously List I Substance
Triclopyr	055335-06-3	Hazardous	Previously List I Substance
Tricresyl-phosphate	001330-78-5	Hazardous	Previously List I Substance
Tridemorph	24602-86-6	Hazardous	Previously List I Substance (Subject to Review)
Trietazine	001912-26-1	Hazardous	Previously List I Substance
Triethanolamine	000102-71-6	Undetermined	Previously Neither List I or II (Determination Required)
Trifluralin	001582-09-8	Hazardous	Previously List I Substance
Triflurosulfuron-methyl	126535-15-7	Hazardous	Previously List I Substance (Subject to Review)
Triforine	026644-46-2	Hazardous	Previously List I Substance
Trinexapac-ethyl	95266-40-3	Undetermined	Previously Neither List I or II (Determination Required)
Trioctyl-phosphate	025103-12-2 or 000078-42-2	Hazardous	Previously List I Substance
Triphenyl-phosphate	000115-86-6	Hazardous	Previously List I Substance
Triphenyltin oxide (TPTO)	000076-87-9	Hazardous	Previously List I Substance
Tris (2,3-bromo-1-propyl) phosphate	000126-72-7	Hazardous	Previously List I Substance
Tris (2-chloro-1-methylethyl) phosphate (TCPP)	13674-84-5	Hazardous	Previously List I Substance (Subject to Review)
Tris(chloropropyl) phosphate	26248-87-3	Hazardous	Previously List I Substance (Subject to Review)
Tris [2-chloro-1-(chloromethyl)ethyl] phosphate (TDCP)	13674-87-8	Hazardous	Previously List I Substance (Subject to Review)
Trisodium nitrilo triacetic acid	5064-31-3	Undetermined	Previously Neither List I or II (Determination Required)
Trixylenyl-phosphate	025653-16-1	Hazardous	Previously List I Substance
Urea	000057-13-6	Undetermined	Previously Neither List I or II (Determination Required)
Vamidothion	002275-23-2	Hazardous	Previously List I Substance
Vanadium	7440-62-2	Non-Hazardous	Previously List II Substance (Subject to Review)
Vegetable oils	68956-68-3	Undetermined	Previously Neither List I or II (Determination Required)
Verticillium lecanii	067892-35-7	Non-Hazardous	Previously List II Substance
Vinclozolin	050471-44-8	Hazardous	Previously List I Substance

Vinyl acetate	108-05-4	Undetermined	Previously Neither List I or II (Determination Required)
Xylene	001330-20-7	Hazardous	Previously List I Substance
Xylenol	1300-71-6	Undetermined	Previously Neither List I or II (Determination Required)
Zinc	007440-66-6	Non-Hazardous	Previously List II Substance
Zinc phosphide	1314-84-7	Non-Hazardous	Previously List II Substance (Subject to Review)
Zineb	012122-67-7	Non-Hazardous	Previously List II Substance
Zineb-ethylene thiuram disulphide		Non-Hazardous	Previously List II Substance
Ziram	000137-30-4	Hazardous	Previously List I Substance

