

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD
HEALTH
ORGANIZATION



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CX 5/15

CL 2000/44-FO
November 2000

TO: Codex Contact Points
Interested International Organizations

FROM: Secretary, Codex Alimentarius Commission

SUBJECT: **Recommended International Code of Practice for the Storage and Transport of Edible Oils and Fats in Bulk – request for comments at Step 3 on the Proposed Draft Lists: Codex List of Acceptable Previous Cargoes and Codex List of Banned Immediate Previous Cargoes**

DEADLINE: 31 December 2000

COMMENTS:

| | |
|---|---|
| To: Secretary Joint FAO/WHO Food Standards Programme – FAO Viale delle Terme di Caracalla 00100 Rome, Italy Fax: +39 (06) 5705 4593 E-mail: codex@fao.org | Copy to: Miss Catriona Stewart Food Labelling, Standards and Consumer Protection Division – Food Standards Agency PO Box 31037, London SW1P 3WG, UK Fax: +44 20 7238 5782 E-mail: catriona.stewart@foodstandards.gsi.gov.uk |
|---|---|

CL 2000/26-FO invited comments from Governments and international organisations on the substances proposed for inclusion in the Codex List of Acceptable Previous Cargoes and the Codex List of Banned Immediate Previous Cargoes at step 3. The responses received to date are reproduced at Annex 1.

PROPOSED DRAFT CODEX LISTS AT STEP 3

On the basis of the comments at Annex 1, the UK Secretariat have prepared a Proposed Draft List of Acceptable Previous Cargoes ('positive' list) and a Proposed Draft List of Banned Immediate Previous Cargoes ('negative' list) at step 3. These are enclosed at Annexes 2 and 3 respectively and comments are invited from governments and interested international organisations. The 'positive' list comprises those substances which have been approved as previous cargoes by the European Commission's Scientific Committee for Food (SCF), FOSFA International and the National Institute of Oilseed Products (NIOP). The 'negative' list has been drafted on the same principle and includes those substances specified as banned immediate previous cargoes by both NIOP and FOSFA.

REVIEW PROCESS

Clearly, the Committee will need to establish a process for keeping the lists up-to-date and decide what evidence will be required for consideration of additional substances for inclusion in either list. In this respect, the UK Secretariat have included some notes to the lists and comments on these are also invited. Substances which have been evaluated by FOSFA, NIOP or the SCF but which are not common to their respective 'positive' or 'negative' lists (these are readily identifiable from the tables included with CL 2000/26-FO) and also those substances suggested by South Africa would be amongst the first to be considered under these criteria.

Governments and international organisations wishing to comment should do so in writing to the above addresses, preferably by email, **before 31 December 2000.**

ANNEX 1

RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR THE STORAGE AND TRANSPORT OF EDIBLE OILS AND FATS IN BULK – CODEX LIST OF ACCEPTABLE PREVIOUS CARGOES AND CODEX LIST OF BANNED IMMEDIATE PREVIOUS CARGOES

COMMENTS FROM GOVERNMENTS AND INTERNATIONAL ORGANISATIONS RECEIVED IN RESPONSE TO CL 2000/26-FO

The following comments have been received from Brazil, Canada and South Africa and from FOSFA International.

BRAZIL

Brasil considers important the definition of only one List of Accepted Previous Cargoes taking into account comments made in Alinorm 99/17, paragraph 104 and observations made by FOSFA and some delegations in the last session of the Committee. Brasil would like to point out that the existence of 2 or more lists could raise confusion and negatively influence international trade. In this way, it should be understood that substances not listed in the List of Accepted Previous Cargoes were not allowed to be transported or stored as previous cargoes.

After careful evaluation of existing Lists from NIOP, FOSFA and European Union as included in the Annex 2 of the Circular Letter, Brasil would like to comment on the proposal of inclusion of the following substances on list of Accepted Previous Cargoes:

1st. Brasil would not comment on proposal of inclusion of the following substances due to lack of sufficient toxicological information for evaluation:

- 2,3 – Butanediol (2,3 – butylene glycol) – CAS nr 513-85-9
- Calcium ammonium nitrate solution – CAS nr 6484-52-2
- Calcium lignosulphonate liquid (lignin liquor; sulphite lye) – CAS nr 8061-52-7
- Iso-propyl alcohol (isopropanol; dimethyl carbinol; 2-propanol) – CAS nr 67-63-0
- Nitric acid
- Nonane – CAS nr 111-84-2
- Propylene glycol, 1,3 – CAS nr 504-63-2
- Tung oil

Note: Regarding Nitric Acid, Brasil would like to ask for clarification on reason why the substance has not been included on the List of Acceptable Previous Cargoes (NIOP, FOSFA and European Union). It should be noted that Nitric Acid is used in many procedures of cleaning in food plants traditionally (CIP – Cleaning in place), particularly in the dairy industry.

2nd. Brasil considers that the following substances should not be included on the List of Acceptable Previous Cargoes:

Alcohol (C14-C16) – CAS nr. 68333-80-2 – BR agrees with the non-inclusion of the substance, as suggested by the organizations (NIOP, FOSFA and European Union).

Calcium nitrate (CN-9) solution – CAS nr. 35054-52-5 – BR agrees with the non-inclusion of the substance, as suggested by European Union), based on data from The Index Merck, 11th edition, 1989, page 255.

Cyclohexanol (hexahydrophenol) – CAS nr. 108-93-0 – BR agrees with the non-inclusion of the substance, as suggested by European Union, also based on data from The Index Merck, 11th edition, 1989, p. 426.

Cyclohexanone (pimelic ketone; Ketoexamethylene) – CAS nr. 108-94-1 – BR agrees with the non-inclusion of the substance, as suggested by European Union, also based on data from The Index Merck, 11th edition, 1989, p. 426.

BR agrees with the non-inclusion of the following substances, as suggested by the organizations (FOSFA and European Union):

- Coconut oil fatty alcohols
- Iso Nonyl alcohol (C8-C10) – CAS nr 68526-84-1
- Palm oil fatty alcohols
- Palm Kernel fatty alcohols
- Tallow fatty alcohols

- Group Fatty acid methyl ester – BR considers it necessary the evaluation of each substance due to the existence of different toxicity of the substances, in spite of this group being separated of the group “Fatty Acid Methyl Ester. Methyl laurate is accepted considering that the substance is included in the list of substances permitted as flavour substance by Jecfa

- Hexadecanal combination – CAS nr. 36653-82-4 – BR agrees that the substance should not be included as suggested by FOSFA and European Union, as no toxicological data for the substance has been found.

- Hydrogen peroxide – BR agrees with other organizations for the non-inclusion.

- Methanol (methyl alcohol) – CAS nr. 67-56-1 – Due to particular characteristics of the national trade of the substance, and considering the existence of evidence showing contamination of food products (such as alcoholic beverages) with methanol in Brasil, BR does not agree with the inclusion proposed of this substance by other organizations.

- Primary alcohol (C9-C11), (C12-C13), (C12-C15) and (C14-C15) – BR agrees with the position of the organizations for the non-inclusion of these substances.

- Tall oil fatty acids, ASTM I and II – CAS nr. 61780-12-3 – BR agrees with positions expressed by FOSFA and the European Union.

- Undececanol, 1- (C-11) – CAS nr. 112-42-5 - BR agrees with position of the majority of the organizations for the non-inclusion of the substance.

3rd. Regarding food ingredients and foods normally consumed, Brasil considers that these should be included in the list of Acceptable Previous Cargoes. There should be a way to include all food ingredients and food products without listing each one. In case it is decided to list the most usually transported and stored in bulk, the following food products should be included:

- Apple juice concentrate
- Beverages – alcoholic
- Beverages – non-alcoholic
- Corn syrup – CAS nr. 8029-43-4
- Dairy products
- Dextrose solution – CAS nr. 50-99-7
- Glucose syrup (corn syrup)
- Grape juice concentrate
- Orange juice slurry
- Vegetable ghee (Codex Stand 157-1987)

4th - Regarding Food Additives a similar approach as food ingredients should be adopted. The percentage of stances Isobutyl alcohol (Isobutanol) – CAS nr. 78-83-1 and Lactic acid – CAS nr. 598-82-3 should be included in the list of acceptable previous cargoes.

5th. Other food additives not listed in the Annex should also be considered for inclusion. A wording should be discussed to permit the inclusion of all approved food additives. In case this is not accepted, Brasil would like to ask for the inclusion of Lecithin and Hydrochloric Acid since these substances are usually transported bulk in Brasil.

6th. Brasil would like also to point out that there are other substances not mentioned in the Annex that are normally transported bulk and that should also be accepted as previous cargoes:

Soap stock (a by product in the oil refining process)

Fatty destilate deodorizers (by product in the oil refining process). mixture that could eventually happen would be relatively very small. In this way, the sub

CANADA

It should be recalled that at the last session of the Codex Committee on Fats and Oils, it was agreed that the Code of Practice for the Transport of Edible Oils in Bulk would include 2 Appendices (Alinorm 99/17, paras 120-123) one listing those substances which would be considered 'acceptable' previous cargoes and the other providing a list of 'banned' previous cargoes. Thus, Codex would recognize both a positive and a negative list which would permit trading partners to utilize the list which best suits their trading history.

Canada would point out, however, that lists in and by themselves do not offer protection from contamination. Even substances which are 'acceptable' previous cargoes can result in a health hazard to the consumer or can result in product degradation in the absence of effective cleaning. Lists of 'acceptable' or 'banned' previous cargoes are not substitute for good cleaning practices.

Canada would like to commend the UK for the work they have done to produce Annexes 2 and 3 to the Circular Letter. This consolidation of lists prepared by the Federation of Oils, Seeds and Fats Association (FOSFA), the National Institute of Oilseed Products (NIOP) and the European Union's Scientific Committee for Food (SCF) provides an excellent table to readily identify those substances which are common to all three organizations.

Canada would suggest capitalizing on the work done by the UK to produce appendices for the Code. Appendix 2, the *List of Acceptable Previous Cargoes*, would initially include those substances which are common to the lists developed by FOSFA, NIOP and the SCF. Similarly, for Appendix 3, *List of Banned Immediate Previous Cargoes*, those substances which are common to the FOSFA and NIOP lists would be included.

CCFO will need to establish a process for amending the appendices and will also need to establish criteria for evaluating substances to be placed on the lists. Substances which have been evaluated either by FOSFA, NIOP or the SCF but are not common to them would be amongst the first substances to be considered for such a review. These substances are readily identifiable from the Tables prepared by the UK. Canada would further suggest that the lists be submitted to the Codex Committee on Food Additives and Contaminants for endorsement.

SOUTH AFRICA.

ANNEX 3

It is wondered whether the committee has considered, apart from "Leaded products":

- Mercury compounds with its equally serious health effects;
- Copper and Iron compounds with their catalytic effects on oils.

FOSFA INTERNATIONAL

A general comment is that Annex 2 and Annex 3, consolidating the Lists submitted from various sources is a useful undertaking and will considerably assist the Committee's activities when the various Lists/substances are reviewed.

LIST G - FOSFA INTERNATIONAL LIST OF ACCEPTABLE PREVIOUS CARGOES

As indicated in the Reference the List now submitted before the Committee is that dated, effective from 1 July 1999. Since the publication of this List the Federation, after careful scientific evaluation has added Hydrogen Peroxide to its List, effective from 1 August 2000. With Hydrogen Peroxide now an approved Acceptable Previous Cargo on both the FOSFA List of Acceptable Previous Cargoes and the NIOP Acceptable Prior Cargo List No 2 it would naturally follow to be a substance to be added to the Joint FOSFA/NIOP International List of Acceptable Previous Cargoes.

Annex 2

We respectfully point out that some of the “x – not included” annotations in respect of the FOSFA version Joint FOSFA/NIOP International List of Acceptable Previous Cargoes and the FOSFA International List of Acceptable Previous Cargoes are incorrect for the following reasons:

| <u>Substance</u> | <u>Comment</u> |
|-------------------------------------|--|
| Coconut Oil Fatty Acid | Included in the FOSFA International List under generic group Fatty Acid Esters. |
| Corn Syrup/Glucose Syrup | Omission, should have been included on the FOSFA – Joint FOSFA/NIOP International List. |
| Dextrose solution | Omission, should have been included on the FOSFA - Joint FOSFA/NIOP International List. |
| Coconut Oil Fatty Alcohol | Included in the generic term Fatty Alcohols – Natural Alcohols. |
| Palm Oil Fatty Alcohol | As above. |
| Palm Kernel Fatty Alcohols | As above. |
| Tallow Fatty Alcohols | As above. |
| Hydrogen Peroxide | See comments above. |
| Orange Juice Slurry | Included under generic term Beverages. |
| Palm Acid Oil | Included under generic group Acid oils derived from vegetable oils and fats. |
| Palm Kernel Fatty Acid Methyl Ester | Included under generic group Fatty acid esters. |
| Palm Oil Fatty Acid Methyl Ester | As above. |
| Primary Alcohols (C9-15) | Included under Fatty alcohols on FOSFA List – 1 July 1999; recommended addition to Joint International List. |
| Vegetable Ghee | Included under the generic group Animal, marine and vegetable oils and fats |

Annex 3

Isocyanates - The Federation’s List of Banned Immediate Previous Cargoes includes all Isocyanates, going on to state those more commonly carried i.e. Toluene di-isocyanate etc therefore in Annex 3 Methylene Diisocyanate would be an included (Banned) substance.

PAPI – Polymethylene polyphenylisocyanate should be treated in the same way.

ANNEX 2

RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR THE STORAGE AND TRANSPORT OF EDIBLE FATS AND OILS IN BULK: APPENDIX 2 - PROPOSED DRAFT LIST OF ACCEPTABLE PREVIOUS CARGOES (AT STEP 3)

Notes

- (1) Where it is not possible to transport edible fats and oils in bulk in tankers reserved for foodstuffs only, the possibility of contamination incidents is reduced by carriage in tankers in which the previous cargo is included in the list below. Application of this list must be combined with: good design of the system; adequate cleaning routines; and, effective inspection procedures (see Section 2.1.3 of the Code).
- (2) Previous cargoes not on the list are only acceptable if they are agreed upon by the competent authorities of the importing country (see section 2.1.3 of the Code).
- (3) The list below is subject to review and possible amendment to take account of scientific or technical developments. Additional substances may be included as acceptable following an appropriate risk assessment evaluation. This should include consideration of:
 - Toxicological properties, including genotoxic and carcinogenic potential (account may be taken of the opinions of JECFA or other recognised bodies);
 - Efficacy of cleaning procedures between cargoes;
 - Dilution factor in relation to the potential amount of residue of the previous cargo and any impurity which the previous cargo might have contained, and the volume of oil or fat transported;
 - Solubility of possible contaminating residues;
 - Subsequent refining/processing of the oil or fat; and,
 - Availability of analytical methods for the detection of trace amounts of residues or for verifying the absence of contamination.

List of acceptable previous cargoes

[to be endorsed by the Codex Committee on Food Additives and Contaminants]

| Substance (synonyms) | CAS Number |
|--|----------------------------|
| Acetic acid (ethanoic acid; vinegar acid; methane carboxylic acid) | 64-19-7 |
| Acetic anhydride (ethanoic anhydride) | 108-24-7 |
| Acetone (dimethylketone; 2-propanone) | 67-64-1 |
| Acid oils and fatty acid distillates - from animal, marine and vegetable fats and oils | |
| Ammonium hydroxide (ammonium hydrate; ammonia solution; aqua ammonia) | 1336-21-6 |
| Ammonium polyphosphate | 68333-79-9 |
| Animal, marine and vegetable oils and fats (including hydrogenated oils and fats) – other than cashew shell nut oil and tall oil | |
| Beeswax – white | 8006-40-4 |
| Beeswax – yellow | 8012-89-3 |
| Benzyl alcohol (pharmaceutical and reagent grades) | 100-51-6 |
| 1,3-Butanediol (1,3-butylene glycol) | 107-88-0 |
| 1,4-Butanediol (1,4-butylene glycol) | 110-63-4 |
| Butyl acetate, n- | 123-86-4 |
| Butyl acetate, sec- | 105-46-4 |
| Butyl acetate, tert- | 540-88-5 |
| Calcium chloride solution | 10043-52-4 |

| Substance (synonyms) | CAS Number |
|---|-------------------|
| Calcium lignosulphonate liquid (lignin liquor; sulphite lye) | 8061-52-7 |
| Candelilla wax | 8006-44-8 |
| Carnauba wax (Brazil wax) | 8015-86-9 |
| Cyclohexane (hexamethylene; hexanaphthene; hexahydrobenzene) | 110-82-7 |
| Ethanol (ethyl alcohol; spirits) | 64-17-5 |
| Ethyl acetate (acetic ether; acetic ester; vinegar naphtha) | 141-78-6 |
| 2-Ethylhexanol (2-ethylhexy alcohol) | 104-76-7 |
| <u>Fatty acids</u> | |
| Arachidic acid (eicosanoic acid) | 506-30-9 |
| Behenic acid (docosanoic acid) | 112-85-6 |
| Butyric acid (n-butyric acid; butanoic acid; ethyl acetic acid; propyl forinic acid) | 107-92-6 |
| Capric acid (n-decanoic acid) | 334-48-5 |
| Caproic acid (n-hexanoic acid) | 142-62-1 |
| Caprylic acid (n-octanoic acid) | 124-07-2 |
| Erucic acid (cis-13-docosenoic acid) | 112-86-7 |
| Heptoic acid (n-heptanoic acid) | 111-14-8 |
| Lauric acid (n-dodecanoic acid) | 143-07-7 |
| Lauroleic acid (dodecenoic acid) | 4998-71-4 |
| Linoleic acid (9,12-octadecadienoic acid) | 60-33-3 |
| Linolenic acid (9,12,15-octadecatrienoic acid) | 463-40-1 |
| Myristic acid (n-tetradecanoic acid) | 544-63-8 |
| Myristoleic acid (n-tetradecenoic acid) | 544-64-9 |
| Oleic acid (n-octadecenoic acid) | 112-80-1 |
| Palmitic acid (n-hexadecanoic acid) | 57-10-3 |
| Palmitoleic acid (cis-9-hexadecenoic acid) | 373-49-9 |
| Pelargonic acid (n-nonanoic acid) | 112-05-0 |
| Ricinoleic acid (cis-12-hydroxy octadec-9-enoic acid; castor oil acid) | 141-22-0 |
| Stearic acid (n-octadecanoic acid) | 57-11-4 |
| Valeric acid (n-pentanoic acid; valerianic acid) | 109-52-4 |
| <u>Fatty alcohols</u> | |
| Butyl alcohol (1-butanol; butyric alcohol) | 71-36-3 |
| Caproyl alcohol (1-hexanol; hexyl alcohol) | 111-27-3 |
| Capryl alcohol (1-n-octanol; heptyl carbinol) | 111-87-5 |
| Cetyl alcohol (alcohol C-16; 1-hexadecanol; cetylic alcohol; palmityl alcohol; n-primary hexadecyl alcohol) | 36653-82-4 |
| Decyl alcohol (1-decanol) | 112-30-1 |
| Iso decyl alcohol (isodecanol) | 25339-17-7 |
| Enanthyl alcohol (1-heptanol; heptyl alcohol) | 111-70-6 |
| Lauryl alcohol (n-dodecanol; dodecyl alcohol) | 112-53-8 |
| Myristyl alcohol (1-tetradecanol; tetradecanol) | 112-72-1 |
| Nonyl alcohol (1-nonanol; pelargonic alcohol; octyl carbinol) | 143-08-8 |
| Iso nonyl alcohol (isononanol) | 27458-94-2 |
| Oleyl alcohol (octadecenol) | 143-28-2 |
| Stearyl alcohol (1-octadecanol) | 112-92-5 |
| Tridecyl alcohol (I-tridecanol) | 27458-92-0 |
| <u>Fatty acid esters</u> – combination of above fatty acids and fatty alcohols | |

| Substance (synonyms) | CAS Number |
|---|-------------------|
| e.g. Butyl myristate | 110-36-1 |
| Cetyl stearate | 110-63-2 |
| Oleyl palmitate | 2906-55-0 |
| FATTY ALCOHOL BLENDS | |
| Cetyl stearyl alcohol (C16-C18) | 67762-27-0 |
| Lauryl myristyl alcohol (C12-C14) | [to be inserted] |
| Formic acid (methanoic acid; hydrogen carboxylic acid) | 64-18-6 |
| Glycerine (glycerol, glycerin) | 56-81-5 |
| Heptane | 142-82-5 |
| n-Hexane | 110-54-3 |
| Iso-butyl acetate | 110-19-0 |
| Iso-octyl alcohol (isooctanol) | 26952-21-6 |
| Iso-propyl alcohol (isopropanol; dimethyl carbinol; 2-propanol) | 67-63-0 |
| Limonene (dipentene) | 138-86-3 |
| Magnesium chloride solution | 7786-30-3 |
| Methanol (methyl alcohol) | 67-56-1 |
| Methyl ethyl ketone (2-butanone; MEK) | 78-93-3 |
| Methyl isobutyl ketone (4-methyl-2-pentanone; iso propylacetone; MIBK) | 108-10-1 |
| Methyl tertiary butyl ether (MBTE) | 1634-04-4 |
| Molasses | 57-50-1 |
| Montan wax | 8002-53-7 |
| Pentane | 109-66-0 |
| Petroleum wax (parafin wax) | 8002-74-2 |
| Phosphoric acid (ortho phosphoric acid) | 7664-38-2 |
| Potable water – only acceptable where the immediate previous cargo is also on the list | 7732-18-5 |
| Polypropylene glycol | 25322-69-4 |
| Potassium hydroxide solution (caustic potash) | 1310-58-3 |
| Propyl acetate | 109-60-4 |
| Propyl alcohol (propane-1-ol; 1-propanol) | 71-23-8 |
| Propylene glycol, 1,2- (1,2-propylene glycol; propan-1,2-diol; 1,2-dihydroxypropane; monopropylene glycol (MPG); methyl glycol) | 57-55-6 |
| Propylene tetramer ((tetrapropylene; dodecene) | 6842-15-5 |
| Silicon dioxide (microsilica) | 7631-86-9 |
| Sodium hydroxide solution (caustic soda, lye; sodium hydrate; white caustic) | 1310-73-2 |
| Sodium silicate (water glass) | 1344-09-8 |
| Sorbitol (D-sorbitol; hexahydric alcohol; D-sorbite) | 50-70-4 |
| Soybean oil epoxidized | 8013-07-8 |
| Sulphuric acid | 7664-93-9 |
| Urea ammonia nitrate solution (UAN) | [to be inserted] |
| White mineral oils | 8042-47-5 |

ANNEX 3

RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR THE STORAGE AND TRANSPORT OF EDIBLE FATS AND OILS IN BULK: APPENDIX 3 - PROPOSED DRAFT LIST OF BANNED IMMEDIATE PREVIOUS CARGOES (AT STEP 3)

Notes

- (1) Where it is not possible to transport edible fats and oils in bulk in tankers reserved for foodstuffs only, the possibility of contamination incidents is reduced by the rejection of tanks which have carried as a last cargo those substances included in the list below. Application of this list must be combined with: good design of the system; adequate cleaning routines; and, effective inspection procedures (see Section 2.1.3 of the Code).
- (2) Cargoes not included in the list are only acceptable if they are agreed upon by the competent authorities of the importing country (see section 2.1.3 of the Code).
- (3) The list below is subject to review and possible amendment to take account of scientific or technical developments. Additional substances may be banned as immediate previous cargoes following an appropriate risk assessment evaluation if it provides evidence of potential consumer safety concerns. This assessment should include consideration of:
 - Toxicological properties, including genotoxic and carcinogenic potential (account may be taken of the opinions of JECFA or other recognised bodies);
 - Efficacy of cleaning procedures between cargoes;
 - Dilution factor in relation to the potential amount of residue of the previous cargo and any impurity which the previous cargo might have contained, and the volume of oil or fat transported;
 - Solubility of possible contaminating residues;
 - Subsequent refining/processing of the oil or fat; and,
 - Availability of analytical methods for the detection of trace amounts of residues or for verifying the absence of contamination.

List of banned immediate previous cargoes

[to be endorsed by the Codex Committee on Food Additives and Contaminants]

| Substance (synonyms in brackets) | CAS number |
|---|------------|
| Acetone cyanohydrin (ACH; α -hydroxyisobutyronitrile; 2-methylactonitrile) | 75-86-5 |
| Acrylonitrile (ACN; 2-propenenitrile; vinyl cyanide) | 107-13-1 |
| n-Butylacrylate | 141-32-2 |
| tert-Butylacrylate | 1663-39-4 |
| Carbon tetrachloride (CTC; tetrachloromethane; perchloromethane) | 56-23-5 |
| Cashew nut shell oil (CNSL; cashew nut shell liquid) | 8007-24-7 |
| Diethanolamine (DEA; di-2-hydroxyethylamine) | 111-42-2 |
| Epichlorohydrin (chloropropylene oxide; EPI) | 106-89-8 |
| Ethyl acrylate | 140-88-5 |
| Ethylene dichloride (EDC; 1,2-dichloroethane; ethylene chloride) | 107-06-2 |
| Isocyanates (These include - | |
| Toluene di-isocyanate (TDI) | 1321-38-6 |
| Polyphenyl polymethylene isocyanate (PAPI, PMPPI) | 9016-87-9 |
| Di-phenyl methane di-isocyanate (MDI) | 101-68-8 |

| Substance (synonyms in brackets) | CAS number |
|--|-------------------|
| Methylene diisocyanate (diisocyanatomethane) | 4747-90-4 |
| Leaded products (shall not be carried as the three previous cargoes) | |
| Methyl acrylate | 96-33-3 |
| Methyl methacrylate monomer | 80-62-6 |
| Di-octyl phthalate (DOP) | 117-84-0 |
| Propylene oxide (methyl oxirane; 1,2-epoxypropane) | 75-56-9 |
| Styrene monomer (vinyl benzene; phenyl ethylene; cinnamene) | 100-42-5 |
| Tall oil | 8002-26-4 |
| Tall oil fatty acid equivalent to ASTM TYPE III | 61790-12-3 |
| Transformer oils of PCB type (e.g. trichlorobiphenyl) | 25323-29-2 |
| Vinyl acetate monomer (VAM) | 05-4 |