

1977 No. 152

CLEAN AIR

Alkali, &c. Works Order (Northern Ireland) 1977

Made 1st June 1977

Coming into operation 1st August 1977

To be laid before Parliament under paragraph 3(3) of
Schedule 1 to the Northern Ireland Act 1974

The Department of the Environment for Northern Ireland, in exercise of the powers conferred by section 18(9) of the Clean Air Act (Northern Ireland) 1964(a) and now vested in it(b) and of every other power enabling it in that behalf, hereby makes the following Order:—

Citation and commencement

1. This Order may be cited as the Alkali, &c. Works Order (Northern Ireland) 1977 and shall come into operation on 1st August 1977.

Interpretation

2. In this Order—

- (a) “the Alkali Act” means the Alkali, &c. Works Regulation Act 1906(c) as amended by the Alkali, &c. Works Order (Northern Ireland) 1968(d),
- (b) any reference to a British Standard or to a British Standard Code of Practice in any such British Standard referred to shall be construed as a reference to a British Standard Specification or a British Standard Code of Practice published under authority of the General Council of the British Standards Institution and where a British Standard referred to, itself refers to a British Standard or to a British Standard Code of Practice, the reference to such British Standard or to such British Standard Code of Practice shall be taken to be a reference to the latest edition thereof as at 30th September 1975 including any amendments thereto published at that date.

Noxious and offensive gases

3. For the list of noxious or offensive gases mentioned in section 27 of the Alkali Act there shall be substituted the list set out in Schedule 1.

Works

4. For the list of Works mentioned in the First Schedule to the Alkali Act there shall be substituted the List of Works set out in Schedule 2.

Revocation

5. The Alkali, &c. Works Order (Northern Ireland) 1968 is hereby revoked.

(a) 1964 c. 16 (N.I.)

(b) S.R. & O. (N.I.) 1964 No. 205 (p. 937); S.R. & O. (N.I.) 1972 No. 111 (p. 414); S.R. & O. (N.I.) 1973 No. 504 (II, p. 2992)

(c) 1906 c. 14

(d) S.R. & O. (N.I.) 1968 No. 232 (p. 1007)

Sealed with the Official Seal of the Department of the Environment for Northern Ireland on 1st June 1977.

(L.S.)

J. A. D. Higgins
Senior Assistant Secretary

SCHEDULE 1

**New List of Noxious or Offensive Gases in Substitution for the one contained in
Section 27 of the Alkali Act**

The expression "noxious or offensive gas" includes the following gases and fumes:—

Acetic acid or its anhydride;

Acetylene;

Acrylates;

Aldehydes;

Amines;

Ammonia or its compounds;

Arsenic or its compounds;

Bisulphide of carbon;

Bromine or its compounds;

Carbon monoxide;

Chlorine or its compounds;

Cyanogen compounds;

Di-isocyanates;

Fluorine or its compounds;

Fumaric acid;

Fumes containing aluminium, antimony, arsenic, beryllium, cadmium, calcium, chlorine, chromium, copper, iron, lead, magnesium, manganese, mercury, molybdenum, phosphorus, potassium, selenium, silicon, sodium, titanium, tungsten, uranium, vanadium, zinc or their compounds;

Fumes from benzene works, cement works, paraffin oil works, petroleum works, or tar works;

Hydrogen chloride;

Hydrogen sulphide;

Iodine or its compounds;

Maleic acid or its anhydride;

Nitric acid or oxides of nitrogen;

Nitriles;

Phthalic acid or its anhydride;

Picolines;

Products containing hydrogen from the partial oxidation of hydrocarbons;

Pyridine;

Smoke, grit and dust;

Sulphuric acid or its anhydride;

Sulphurous acid and sulphur dioxide;

Volatile organic sulphur compounds.

SCHEDULE 2

New List of Works in Substitution for the list in the First Schedule to the Alkali Act

LIST OF WORKS

- (1) Sulphuric acid works, that is to say, works in which the manufacture of sulphuric acid is carried on by the lead chamber process, namely, the process by which sulphurous acid is converted into sulphuric acid by the agency of oxides of nitrogen and by the use of a lead chamber or by any other process involving the use of oxides of nitrogen.
- (2) Sulphuric acid (Class II) works, that is to say, works in which the manufacture of sulphuric acid is carried on by any process other than the lead chamber process, and works for the concentration or distillation of sulphuric acid.
- (3) Chemical manure works, that is to say, works in which the manufacture of chemical manure is carried on, and works in which any mineral phosphate is subjected to treatment involving chemical change through the application or use of any acid and works for the granulating of chemical manures involving the evolution of any noxious or offensive gas.
- (4) Gas liquor works, that is to say, works (not being sulphate of ammonia works or chloride of ammonia works as defined in paragraph (6)) in which hydrogen sulphide or any other noxious or offensive gas is evolved by the use of ammoniacal liquor in any manufacturing process, and works in which any such liquor is desulphurised by the application of heat in any process connected with the purification of gas.
- (5) Nitric acid works, that is to say, works in which the manufacture of nitric acid is carried on and works in which nitric acid is recovered from oxides of nitrogen and works where in the manufacture of any product any acid-forming oxide of nitrogen is evolved.
- (6) Sulphate of ammonia works, and chloride of ammonia works, that is to say, works in which the manufacture of sulphate of ammonia or of chloride of ammonia is carried on.
- (7) Chlorine works, that is to say, works in which chlorine is made or used in any manufacturing process.
- (8) Hydrochloric acid works, that is to say—
 - (a) hydrochloric acid works, or works (not being alkali works as defined in section 27(1) of the Alkali Act) where hydrogen chloride is evolved either during the preparation of liquid hydrochloric acid or for use in any manufacturing process or as the result of the use of chlorides in a chemical process;
 - (b) tin plate flux works, that is to say, works in which any residue or flux from tin plate works is calcined for the utilisation of such residue or flux, and in which hydrogen chloride is evolved; and
 - (c) salt works, that is to say, works (not being works in which salt is produced by refining rock salt otherwise than by the dissolution of rock salt at the place of deposit) in which the extraction of salt from brine is carried on, and in which hydrogen chloride is evolved.
- (9) Sulphide works, that is to say, works in which hydrogen sulphide is evolved by the decomposition of metallic sulphides, or in which hydrogen sulphide is used in the production of such sulphides, or any works in which hydrogen sulphide is evolved as part of a chemical process.
- (10) Alkali waste works, that is to say, works in which alkali waste or the drainage therefrom is subjected to any chemical process for the recovery of sulphur or for the utilisation of any constituent of such waste or drainage.

- (11) Venetian red works, that is to say, works for the manufacture of Venetian red, crocus, or polishing powder, by heating sulphate or some other salt of iron.
- (12) Lead deposit works, that is to say, works in which the sulphate of lead deposit from sulphuric acid chambers is dried or smelted.
- (13) Arsenic works, that is to say, works for the preparation of arsenious acid, or where nitric acid or a nitrate is used in the manufacture of arsenic acid or an arsenate and works in which any volatile compound of arsenic is evolved in any manufacturing process and works in which arsenic is made.
- (14) Nitrate and chloride of iron works, that is to say, works in which nitric acid or a nitrate is used in the manufacture of nitrate or chloride of iron.
- (15) Bisulphide of carbon works, that is to say, works for the manufacture, use or recovery of bisulphide of carbon.
- (16) Sulphocyanide works, that is to say, works in which the manufacture of any sulphocyanide is carried on by the reaction of bisulphide of carbon upon ammonia or any of its compounds.
- (17) Picric acid works, that is to say, works in which nitric acid or a nitrate is used in the manufacture of picric acid.
- (18) Paraffin oil works, that is to say, works in which crude shale oil is produced or refined, and works in which—
 - (a) any product of the refining of crude shale oil is treated so as to cause the evolution of gases containing any sulphur compound; or
 - (b) any such product as aforesaid is used in any subsequent chemical manufacturing process.
- (19) Bisulphite works, that is to say, works in which sulphurous acid is used in the manufacture of acid sulphites of the alkalis or alkaline earths and works for the manufacture of liquid sulphur dioxide or of sulphurous acid or of any sulphite works (not being smelting works as defined in section 8(1) of the Alkali Act or other works defined elsewhere in this schedule) in which oxides of sulphur are evolved in any chemical manufacturing process.
- (20) Tar works, that is to say, works where gas tar or coal tar is distilled or is heated in any manufacturing process and works in which any product of the distillation of gas tar or coal tar is distilled or is heated in any manufacturing operation involving the evolution of any noxious or offensive gas.
- (21) Zinc works, that is to say, works in which, by the application of heat, zinc is extracted from the ore, or from any residue containing that metal, and works in which compounds of zinc are made by dry processes giving rise to fume.
- (22) Benzene works, that is to say, works (not being tar works as defined in paragraph (20)) in which—
 - (a) any wash oil used for the scrubbing of coal gas is distilled; or
 - (b) any crude benzol is distilled.
- (23) Pyridine works, that is to say, works in which pyridine or picolinés is or are made or recovered.
- (24) Bromine works, that is to say, works in which bromine is made or used in any manufacturing operation.
- (25) Hydrofluoric acid works, that is to say, works in which hydrofluoric acid is evolved in the manufacture of liquid hydrofluoric acid or its compounds.
- (26) Cement production works, that is to say, works in which—
 - (a) argillaceous and calcareous materials are used in the production of cement clinker; or
 - (b) cement clinker is handled and ground; or
 - (c) cement is packed.

- (27) Lead works, that is to say, works (not being works for the recovery of lead from scrap by direct liquation) in which—
- (a) by the application of heat, lead is extracted from any material containing lead or its compounds; or
 - (b) compounds of lead are manufactured from metallic lead or its compounds by dry processes which give rise to dust or fume.
- (28) Fluorine works, that is to say, works in which fluorine or its compounds with other halogens are made or used in any manufacturing process, and works for the manufacture of fluorides, borofluorides or silicofluorides.
- (29) Acid sludge works, that is to say, works in which acid sludge produced in the refining of coal tar, petroleum or other hydrocarbon derivatives is treated in such manner as to cause the evolution of any noxious or offensive gas.
- (30) Iron works and steel works, that is to say, works in which—
- (a) iron or ferro-alloys are produced in a blast furnace; or
 - (b) raw materials for use in blast furnaces are handled or prepared; or
 - (c) iron ores for use in blast furnaces are calcined or sintered; or
 - (d) iron or steel is melted in cupolas employing a heated air blast, or in electric arc furnaces; or
 - (e) steel is produced, melted or refined in Bessemer, Tropenas, open hearth or electric arc furnaces; or
 - (f) oxygen or air enriched with oxygen is used for the refining of iron or for the production, shaping or finishing of steel; or
 - (g) ferro-alloys are made by processes giving rise to fume.
- (31) Copper works, that is to say, works in which—
- (a) by the application of heat—
 - (i) copper is extracted from any ore or concentrate or from any material containing copper or its compounds; or
 - (ii) molten copper is refined; or
 - (iii) copper or copper alloy swarf is degreased; or
 - (iv) copper alloys are recovered from scrap fabricated metal, swarf or residues by processes designed to reduce the zinc content; or
 - (b) copper or copper alloy is melted and cast in moulds the internal surfaces of which have been coated with grease-bound or oil-bound dressings: Provided that sub-paragraph (b) shall not apply to works in which the aggregate casting capacity does not exceed ten tons per day.
- (32) Aluminium works, that is to say, works in which—
- (a) aluminium swarf is degreased by the application of heat; or
 - (b) aluminium or aluminium alloys are recovered from aluminium or aluminium alloy scrap fabricated metal, swarf, skimmings, drosses or other residues by melting but not including works in which aluminium or aluminium alloys are separate from ferrous metals by liquation in sloping hearth furnaces; or
 - (c) aluminium is recovered from slag; or
 - (d) molten aluminium or aluminium alloys are treated by any process involving the evolution of chlorine or its compounds; or
 - (e) aluminium is extracted from any material containing aluminium by a process evolving any noxious or offensive gases; or
 - (f) oxide of aluminium is extracted from any ore; or
 - (g) materials used in the above processes or the products thereof are treated or handled by methods which cause noxious or offensive gases to be evolved.
- (33) Electricity works, that is to say, works in which—

- (a) solid or liquid fuel is burned to raise steam for the generation of electricity for distribution to the general public or for purposes of public transport; or
- (b) boilers having an aggregate maximum continuous rating of not less than 450,000 lb. of steam per hour and normally fired by solid or liquid fuel are used to produce steam for the generation of electricity for purposes other than those referred to in sub-paragraph (a); or
- (c) liquid fuel is burned in an internal combustion engine (other than a compression ignition engine burning fuel with a sulphur content not exceeding that specified for fuel within Class A2 referred to in British Standard 2869:1970, and tested in accordance with British Standard 4384:1969) for the generation of electricity for distribution to the general public.
- (34) Producer gas works, that is to say, works in which producer gas is made from coal and in which raw producer gas is transmitted or used.
- (35) Gas and coke works, that is to say, works (not being producer gas works as defined in paragraph (34) in which—
- (a) coal, oil or mixtures of coal or oil with other carbonaceous materials or products of petroleum refining or natural gas or methane from coal mines or gas derived from fermentation of carbonaceous materials, are handled or prepared for carbonisation or gasification or reforming and in which these materials are subsequently carbonised or gasified or reformed; or
- (b) water gas is produced or purified; or
- (c) coke or semi-coke is produced and quenched, cut, crushed or graded; or
- (d) gases derived from any process referred to in sub-paragraph (a) are subjected to purification processes.
- (36) Ceramic works, that is to say, works in which—
- (a) pottery products (including domestic earthenware and china, sanitary ware, electrical porcelain, glazed tiles and teapots) are made in intermittent kilns fired by coal or oil; or
- (b) heavy clay or refractory goods are fired—
- (i) by coal or oil in intermittent kilns; or
- (ii) by coal or oil in continuous grate-fired kilns, not being tunnel kilns; or
- (iii) in any kiln in which a reducing atmosphere is essential; or
- (c) salt glazing of any earthenware or clay material is carried on.
- (37) Lime works, that is to say, works in which calcium carbonate or calcium-magnesium carbonate is burnt through the agency of coal or oil.
- (38) Sulphate reduction works, that is to say, works in which metallic sulphates are reduced to the corresponding sulphides by heating with carbonaceous matter.
- (39) Caustic soda works, that is to say, works in which—
- (a) either concentrated solutions of caustic soda or fused caustic soda are produced in vessels heated by coal; or
- (b) black liquor produced in the manufacture of paper is calcined in the recovery of caustic soda.
- (40) Chemical incineration works, that is to say, works for the destruction by burning of wastes produced in the course of organic chemical reactions which occur during the manufacture of materials for the fabrication of plastics and fibres, and works for the destruction by burning of chemical wastes containing combined chlorine, fluorine, nitrogen, phosphorus or sulphur.
- (41) Uranium works, that is to say, works (not being works licensed under the Nuclear Installations Acts 1965(e) and 1969(f) and not being nuclear reactors or works involving the processing of irradiated fuel therefrom for the purpose of removing fission products) in which—

- (a) any ore or concentrate or any material containing uranium or its compounds is treated for the production of uranium or its alloys or its compounds; or
 - (b) any volatile compounds of uranium are manufactured or used; or
 - (c) uranium or its compounds are manufactured, fashioned or fabricated by any dry process giving rise to dust or fume.
- (42) Beryllium works, that is to say, works in which—
- (a) any ore or concentrate or any material containing beryllium or its compounds is treated for the production of beryllium or its alloys or its compounds; or
 - (b) any material containing beryllium or its alloys or its compounds is treated, processed or fabricated in any manner giving rise to dust or fume.
- (43) Selenium works, that is to say, works in which—
- (a) any ore or concentrate or any material containing selenium or its compounds is treated for the production of selenium or its alloys or its compounds; or
 - (b) any material containing selenium or its alloys or its compounds other than as colouring matter, is treated, processed or fabricated in any manner giving rise to dust or fume.
- (44) Phosphorus works, that is to say, works in which—
- (a) phosphorus is made; or
 - (b) yellow phosphorus is used in any chemical or metallurgical process.
- (45) Ammonia works, that is to say, works in which ammonia is—
- (a) made; or
 - (b) used in the ammonia-soda process; or
 - (c) used in the manufacture of carbonate, nitrate or phosphate of ammonia or urea or nitriles.
- (46) Hydrogen cyanide works, that is to say, works in which hydrogen cyanide is made or is used in any chemical manufacturing process.
- (47) Acetylene works, that is to say, works in which acetylene is made or used in any chemical manufacturing process.
- (48) Amine works, that is to say, works in which methylamines or ethylamines are made or used in any chemical process.
- (49) Calcium carbide works, that is to say, works in which calcium carbide is made.
- (50) Aldehyde works, that is to say, works in which formaldehyde, acetaldehyde or acrolein or the methyl, ethyl or propyl derivatives of acrolein are made.
- (51) Anhydride works, that is to say, works in which acetic, maleic or phthalic anhydrides or the corresponding acids are made.
- (52) Chromium works, that is to say, works in which any chrome ore or concentrate is treated for the production therefrom of chromium compounds or chromium metal is made by dry processes giving rise to fume.
- (53) Magnesium works, that is to say, works in which magnesium or any compound of magnesium is made by dry processes giving rise to fume.
- (54) Cadmium works, that is to say, works in which metallic cadmium is recovered or cadmium alloys are made or any compound of cadmium is made by dry processes giving rise to fume.
- (55) Manganese works, that is to say, works in which manganese or its alloys or any compound of manganese is made by dry processes giving rise to fume.

- (56) Metal recovery works, that is to say, works in which metal is recovered from scrap cable by burning the insulation.
- (57) Petroleum works, that is to say, works in which—
- (a) crude petroleum is handled or stored; or
 - (b) crude petroleum is refined by any operation carried out at petroleum refineries to convert crude petroleum into saleable products; or
 - (c) any product of such refining is subjected to further refining; or
 - (d) natural gas is refined; or
 - (e) any product of any of the foregoing refining operations is used, except as a solvent, in any subsequent chemical manufacturing process, not being a chemical manufacturing process defined in any other paragraph of this schedule; or
 - (f) used lubricating oil is prepared for re-use by any thermal process.
- (58) Acrylate works, that is to say, works in which acrylates are—
- (a) made; or
 - (b) purified; or
 - (c) made or purified and polymerised.
- (59) Di-isocyanates works, that is to say, works in which di-isocyanates are—
- (a) made; or
 - (b) partly polymerised; or
 - (c) used in the manufacture of expanded plastics.
- (60) Mineral works, that is to say, works in which—
- (a) (i) metallurgical slags; or
 - (ii) pulverised fuel ash; or
 - (iii) minerals other than—
 - (A) moulding sand in foundries; or
 - (B) coal
- are subjected to any size reduction, grading or heating by processes giving rise to dust; and
- (b) any product of any of the processes referred to in sub-paragraph (a) is handled.

EXPLANATORY NOTE

(This note is not part of the Order, but is intended to indicate its general purport.)

The discharge of certain noxious or offensive gases from certain types of works is subject to control under the Alkali, &c. Works Regulation Act 1906. Section 18(9) of the Clean Air Act (Northern Ireland) 1964 empowers the Department to make orders amending or extending both the list of gases and the list of works. The existing list of gases is set out in section 27 of the 1906 Act as extended and amended by the Alkali, &c. Works (Northern Ireland) Order 1968, and the existing list of works is set out in the First Schedule to the 1906 Act also as extended and amended by the 1968 Order. This Order further extends and amends both these lists and consolidates the original lists set out in the 1906 Act, the extensions and amendments made in the 1968 Order which is revoked, and the extensions and amendments made in this Order.