



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 18.09.1995  
COM(95)310 final

95/0235 (SYN)

Proposal for a  
COUNCIL DIRECTIVE  
on minimum  
requirements for improving the safety and  
health protection of workers potentially at risk  
from explosive atmospheres

(presented by the Commission)

## EXPLANATORY MEMORANDUM

### 1 LEGAL BASE

This proposal is based on Article 118a of the EC Treaty and is presented in the form of an individual directive under Article 16 (1) of Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the health and safety of workers at work<sup>1</sup>.

The proposal comes under action<sup>2</sup> taken to impart a social dimension to the completion of the internal market<sup>3</sup>. It is to be regarded as a social complement to the directives on the free movement of goods and, in particular, as a complement to Parliament and Council Directive 94/9/EC<sup>4</sup> on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres.

### 2 AIMS OF THE PROPOSAL

The aims of the proposal are as follows:

- a) To establish minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.
- b) To harmonise – as provided for in Article 118a of the Treaty – the minimum requirements for the safety and health protection of workers potentially at risk from explosive atmospheres.
- c) To establish specific provisions to improve the safety and health protection of workers potentially at risk from explosive atmospheres in strict compliance with the principles set out in the Framework Directive.
- d) To create a suitable framework for explosion protection for industry in general such as already exists for the mineral-extracting industries (Directives 92/91/EEC<sup>5</sup> and 92/104/EEC<sup>6</sup>).

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1 OJ No L 183, 29.6.1989, p. 1.

2 Council Resolution of 21 December 1987 on safety, hygiene and health at work and Commission communication on its programme concerning safety, hygiene and health at work (OJ No C 28, 3.2.1988).

3 Commission's White Paper on the completion of the internal market (COM(85) 310 final).

4 OJ No L 100, 19.4.1994, p. 1.

5 OJ No L 348, 28.11.1992, p. 9.

6 OJ No L 404, 31.12.1992, p.10.

[REDACTED]

### 3 JUSTIFICATION FOR THE PROPOSAL

#### a) Reasons for Community action

The Commission has produced this proposal for a Directive for improving the safety and health protection of workers potentially at risk from explosive atmospheres in pursuance of Article 118a, which provides for improvement of workers' safety and health protection.

With this proposal, the Commission discharges the obligation arising out of the tenth recital to Directive 94/9/EC which states: "Whereas the intention is to prepare a directive on operations in potentially explosive atmospheres which is based on Article 118a; whereas that additional directive will, in particular, aim at explosion hazards which derive from a given use and/or types and methods of installation".

In the Member States, the legal provisions for the protection of workers potentially at risk from explosive atmospheres vary considerably. In some cases they are rudimentary and in others they are comprehensive; some are more stringent than the present proposal, which is designed to ensure that all Member States come up at least to the minimum requirements considered necessary. In line with Article 118a of the EC Treaty, the proposal is couched in general terms so that its principles apply universally.

#### b) Subsidiarity

The proposal does not breach the principle of subsidiarity because it is only by Community action that standard minimum requirements for the protection of workers at risk from explosive atmospheres can be assured in all Member States. Such action will also avoid any distortion in competition as these requirements will ensure that a minimum standard of protection for workers is maintained in the Member States.

Directive 94/9/EC divides the equipment and protective systems which it covers into groups of equipment and categories. If these categories - which correspond to specific levels of protection - are to be applied as intended, the places in which explosive atmospheres may be present must be classified in terms of zones. One of the purposes of this Directive to create a standard legal basis for such classification of the places where the equipment is to be used.

[REDACTED]

This zoning is carried out by the employer on the basis of a risk assessment and allows equipment with a suitable level of protection to be selected. The employer can choose the most suitable equipment by matching zones and categories; without such zoning, full advantage cannot be taken of the benefits of Directive 94/9/EC.

For zoning purposes, a formula acceptable to all the Member States has now been found for the sector "explosive atmospheres in the form of a cloud of combustible dust in the air", which had not been covered by any standard provisions hitherto.

During consultation with the various parties concerned it was agreed that the zones, which represent a key element of explosion protection, should be defined by law.

Directive 94/9/EC does not distinguish between electrical and other, e.g. mechanical, causes of ignition. This proposal follows the same approach, thereby ensuring that this universal approach to explosion protection is enshrined in the law in all the Member States.

Furthermore, this proposal will encourage more flexibility in cross-border employment because workers can be confident that the same minimum requirements for protection of their health and safety apply in all Member States. Employers can also be sure that production costs will not be unnecessarily distorted as a result of differences in occupational health and safety standards.

The current proposal responds to the above needs and also contributes to realizing the social dimension of the internal market. It includes measures relating to information, which is one of the pillars on which effective health and safety practices are founded.

The objectives outlined above impinge on a number of different areas of Community policy. As it is unlikely that they can be achieved by Member States acting individually, coordinated action needs to be taken at Community level.

c) Proportionality

Community health and safety provisions have to be framed in such a way that they meet the requirements for acceptable minimum standards of health and safety without imposing an unnecessary burden on employers. In particular, they must avoid constraints which would hold back the creation and development of small and medium-sized enterprises. The present proposal meets these two requirements.

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The proposal supplements Directive 94/9/EC and amplifies the provisions of Framework Directive 89/391/EEC on the introduction of measures to encourage improvements in the health and safety of workers at work. The provisions proposed here are based on the risk evaluation to be undertaken by the employer in accordance with Article 6 (3) of Directive 89/391/EEC. Just as the text is an amplification of Directive 89/391/EEC, so the special provisions provide guidance on implementing Framework Directive 89/391/EEC with regard to explosion protection, thus making it easier to apply.

Further to Directive 89/391/EEC, the employer is required, *inter alia*, to produce an explosion protection document and keep it up to date. This document may be part of the assessment of the risks to safety and health at work required by Article 9 (1)(a) of Directive 89/391/EEC and must contain the necessary measures for the safety and health protection of workers potentially at risk from explosive atmospheres.

This proposal for a Directive was drawn up in the spirit of the Framework Directive. Particular care was taken not to prescribe any details but to set the protective goals which were to be attained. The employer is given maximum freedom to decide how these goals are best to be achieved in practice.

The Commission seriously considered whether this proposal could be integrated in the "proposal for a Council Directive amending Directive 89/655/EEC on minimum safety and health requirements for the use of work equipment by workers at work". This avenue was not explored any further since, in order to retain the contents of this proposal, Directive 89/654/EEC would also have had to be changed, as explosion protection contains elements which are relevant to work equipment and the workplace. The number of legislative proposals would thus not have been reduced, the procedure would have been far more complicated and the resulting legislation would have been much harder to understand. Furthermore, the introduction of a warning sign to identify places in which explosive atmospheres may occur is also relevant to Directive 92/58/EEC<sup>7</sup>.

The two Directives 92/91/EEC and 92/104/EEC contain many specific requirements for explosion protection which go into detail and are tailored to the specific circumstances in the mineral-extracting industries. This proposal, on the other hand, has been couched in more general and, in so far as this was justified, less stringent terms since it covers the whole range of industry.

**[REDACTED]**

**4 THE PROPOSAL IN CONNECTION WITH EXISTING NATIONAL LEGAL PROVISIONS**

At Community level there are no legal provisions for improving health and safety of workers potentially at risk from explosive atmospheres except the Directives mentioned above, 92/91/EEC and 92/104/EEC, which are intended to protect workers in the mineral-extracting industries. The parts of the extractive industries covered by the two Directives are therefore excluded from the scope of the present proposal for a Directive. However, in order to avoid any gaps in the legislation, these two Directives are to be amended to add the few missing elements; this particularly applies to zoning and safety signing.

Legal and administrative provisions with regard to health and safety of workers potentially at risk from explosive atmospheres exist in several Member States of the European Union. Generally speaking, these are framework laws which are supplemented by administrative provisions and legal instruments. Specific technical provisions usually exist only in respect of electrical sources of ignition in the form of technical regulations, guidelines or international or national standards; only a few national provisions exist in respect of mechanical or other sources of ignition.

**5 PREPARATION OF THE PROPOSAL AND CONSULTATION OF PARTIES CONCERNED**

The Commission has consulted and involved in the preparation of the proposal experts and representatives of governments and workers' and employers' organisations.

The proposal was drawn up in close collaboration with these parties.

In addition, the Advisory Committee for Safety, Hygiene and Health Protection at Work and the Safety and Health Commission for the Mining and Other Extractive Industries instituted by Council Decisions 74/325/EEC and 74/326/EEC of 27 June 1974 were consulted. Both bodies delivered formal opinions, which were taken into consideration. Particular account was taken of the comments on ensuring that the Directive's provisions could be better and more simply applied in SMEs, in the light of the second subparagraph of Article 118a (2) of the Treaty.

The Commission had a study made of the social and economic impact of the proposal.

This study was discussed and accepted by a group of national experts and was used as a basis for preparing a social and economic impact assessment form.

Moreover, throughout the process of preparing the proposal, the Commission received and took into account comments from professional organisations and institutions in the Member States of the Union and the EFTA states.

## 6 DESCRIPTION OF THE PROPOSAL

As explained above, this proposal for a Council Directive is based on Article 118a and takes the form of an individual directive within the meaning of Article 16 (1) of Directive 89/391/EEC. It contains a preamble, three sections with a total of 13 articles and five annexes.

### Section I General provisions

#### Article 1

This article identifies the Directive as an individual directive within the meaning of Article 16 (1) of Framework Directive 89/391/EEC. Its provisions are thus minimum requirements within the meaning of Article 118a of the Treaty. As in Directive 94/9/EC, medical facilities, appliances burning gaseous fuels, the use of explosives, the use of means of transport and the mineral-extracting industries, which are already covered by Community law or by international agreements, are excluded.

#### Article 2

The definition of an explosive atmosphere corresponds to that used in Directive 94/9/EC.

### Section II Obligations of the employer

#### Article 3

The third article sets out the principles of explosion protection:

1. to prevent the formation of explosive atmospheres;
2. to prevent the ignition of explosive atmospheres;
3. to minimise the effects of explosions.

#### Article 4

This article contains general obligations to be discharged by the employer in order to comply with the principles set out in Article 3. These cover both organisational and technical aspects of the workplace and, in general terms, the technical requirements for work equipment and protective equipment.

Paragraph 3 places an obligation on the employer to draw up an explosion protection document. It should be noted that the employer is bound, in accordance with Articles 6, 9 and 10 of Directive 89/391/EEC, to make an assessment of the risks involved.

[REDACTED]

The requirement to draw up an explosion protection document is, therefore, not an additional requirement but amplifies the general requirement contained in the Framework Directive. The explosion protection document is thus an integral part of the risk assessment mentioned above.

The fourth paragraph requires safety and health measures to be coordinated when workers from several companies are working on one site. This corresponds to Article 3 (3) of Directives 92/91/EEC and 92/104/EEC.

#### Article 5

This article places an obligation on the employer to classify places where workers could be at risk from explosive atmospheres in terms of zones as specified in Annex I and to apply there the minimum requirements set out in Annex II A. Where necessary these places are to be marked by signs in accordance with Annex III.

#### Articles 6, 7 and 8

These articles regarding information, training and/or consultation and participation of workers correspond to Articles 10, 11 and 12 of Directive 89/391/EEC and are reiterated briefly here as in all individual directives under the Framework Directive.

#### Article 9

This article establishes transitional provisions for both already existing and new workplaces and work equipment.

As explained above, explosion protection involves special requirements in respect of both workplaces and work equipment.

This proposal assumes that work equipment already in service which was hitherto regarded as safe may continue to be operated unchanged.

Paragraph 1 takes account of the fact that there are already European directives for electrical work equipment which will be superseded by Directive 94/9/EC as from 1 July 2003, and that, from 1 July 2003 onwards, all work equipment which might constitute an ignition hazard must comply with the latter Directive.

Paragraph 2 requires that work equipment which is first made available after 1 July 2003 must comply with Directive 94/9/EC.

Paragraph 3 requires that workplaces which fall within the scope of this Directive and are used for the first time once the Directive has come into force, must comply with it.

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Paragraph 4 provides for a transitional period of three years for workplaces which are already operational.

Paragraph 5 establishes that modifications to existing workplaces or work equipment which are carried out after the Directive comes into force, must comply with the Directive.

### Section III

#### Article 10

This article corresponds to the provisions of Directive 89/391/EEC with regard to the procedure for adjustments to the annexes.

#### Article 11

This article provides that a vademecum is to be produced, describing possible ways in which the minimum requirements of this proposal can be fulfilled.

#### Articles 12 and 13

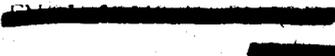
These articles contain the customary final provisions. The proposed deadline for transposal is 31 December 1997.

#### Annex I

This annex contains the classification for zoning, which refers to the place of use and is to be carried out by the employer.

A view which was expressed frequently during the consultations and which was unopposed was that it was vital for this key element of explosion protection to be uniformly regulated by legislation throughout the Union and not to be left to the standardisation organisations. It should be noted that the categories created in Directive 94/9/EC, which are determined by the manufacturer, are useless without the zoning system.

The zoning method conforms as far as possible with existing international (ISO) standards. It is worth noting that the discussion on this proposal produced a broad consensus as regards the classification of places in which explosive atmospheres occur in the form of a cloud of combustible dust in the air. Hitherto, the Member States' approaches to this problem had differed.



## Annex II

This annex is divided into two parts. Part A contains "Minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres"; while Part B contains "Criteria for the selection of work equipment and installation materials"

Part A is divided into four sections.

### 1. Organisational measures

Here an obligation is established, *inter alia*,

- to have a sufficient number of qualified workers
- to make arrangements for written instructions and permits to work.

### 2. Assessment of explosion risks

General principles are set out for assessing explosion risks.

### 3. Planning principles

General principles are set out for planning new or modifying existing installations.

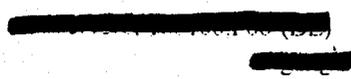
### 4. Explosion protection measures

The explosion protection measures to be taken are listed in brief and general terms. The protective goals which are to be achieved are set out and, where necessary, requirements from Directive 94/9/EC are repeated and/or supplemented.

Part B assigns the categories defined in Directive 94/9/EC to the various zones.

## Annex III

This annex takes account of the desire shared by all the parties concerned to introduce a standard sign for places in which explosive atmospheres can occur. This sign uses the European "Ex" symbol, which is also associated with explosive atmospheres throughout the world. The principles of Directive 92/58/EEC are also applied.



Annex IV

In this part of the Directive, which is not binding, guide criteria are set out for the performance of work in the various zones. The Member States can use these as a guide when transposing the Directive into national law.

Annex V

Annex V contains a non-exhaustive list of subjects to be covered by the vademecum.

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**PROPOSAL FOR A COUNCIL DIRECTIVE ON MINIMUM REQUIREMENTS FOR IMPROVING THE SAFETY AND HEALTH PROTECTION OF WORKERS POTENTIALLY AT RISK FROM EXPLOSIVE ATMOSPHERES**

**THE COUNCIL OF THE EUROPEAN UNION**

Having regard to the Treaty establishing the European Community, and in particular Article 118a thereof,

Having regard to the Commission proposal<sup>1</sup> submitted after consultation with the Advisory Committee on Safety, Hygiene and Health Protection at Work and the Safety and Health Commission for the Mining and Other Extractive Industries,

In cooperation with the European Parliament<sup>2</sup>,

Having regard to the opinion of the Economic and Social Committee<sup>3</sup>,

Whereas Article 118a of the Treaty provides that the Council shall adopt, by means of directives, minimum requirements designed to encourage improvements, especially in the working environment, as regards the health and safety of workers;

Whereas, under the terms of that Article, those directives are to avoid imposing administrative, financial and legal constraints in a way which would hold back the creation and development of small and medium-sized undertakings;

Whereas the improvement of occupational safety, hygiene and health is an objective which should not be subordinated to purely economic considerations;

Whereas compliance with the minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres is essential to ensure workers' safety and health protection;

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1 OJ No C ..... p.

2 OJ No C ..... p.

3 OJ No C ..... p.

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Whereas this Directive is an individual directive within the meaning of Article 16 (1) of Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work<sup>4</sup>; whereas, therefore, the provisions of the said Directive are also fully applicable to cases in which workers are potentially at risk from explosive atmospheres without prejudice to more restrictive or specific provisions contained in this Directive;

Whereas this Directive constitutes a practical step towards the achievement of the social dimension of the internal market;

Whereas the recitals to Parliament and Council Directive 94/9/EC on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres state that it is intended to prepare an additional directive based on Article 118a covering, in particular, explosion hazards which derive from a given use and/or types and methods of installation of equipment;

Whereas explosion protection is of particular importance to safety; whereas explosions endanger the lives and health of workers as a result of the uncontrolled effects of flame and pressure, the presence of noxious reaction products and consumption of the oxygen in the ambient air which workers need to breathe;

Whereas explosions are characterised by the extreme rapidity with which they occur and the danger of propagation within interlinked installations; whereas manual intervention after an ignition is normally impossible; whereas, therefore, the minimum requirements for improving the safety and health protection of workers at risk from explosive atmospheres place special emphasis on the need for analysis to forecast the potential danger and the need for all necessary protective measures to be included right from the planning stage;

Whereas the large number of potential explosion risks necessitates an overall assessment of places of work, in the context of which it becomes increasingly important, in line with technical development, to take account of logical (software) malfunctions in automatically controlled processes;

Whereas the organisational aspects of explosion protection must be adapted to the technical problems occurring at places of work so that no weaknesses arise in the explosion protection arrangements; whereas Directive 89/391/EEC requires the employer to be in possession of an assessment of the risks to workers' safety and health at work; whereas this requirement is to be regarded as being amplified by the present Directive in that it provides that the employer shall draw up an explosion protection document and keep it up to date; whereas this explosion

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OJ No L 183, 29.6.1989, p.1

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protection document may be part of the assessment of the risks to safety and health at work required by Article 9 (1)a of Directive 89/391/EEC; whereas the explosion protection document must contain the necessary measures for the safety and health protection of workers potentially at risk from explosive atmospheres;

Whereas an assessment of explosion risks may be required under other Community legislation; whereas, in order to avoid unnecessary duplication of work, the employer should be allowed, in accordance with national practice, to combine documents, parts of documents or other equivalent reports produced in response to other legislation to form a single "safety report";

Whereas preventive measures must be supplemented if necessary by additional measures which become effective when ignition has taken place; whereas maximum safety can be achieved only by combining preventive and supplementary measures and taking account of operational conditions and the necessary maintenance;

Whereas the prevention of explosive atmospheres as a general rule has priority; whereas in cases in which this is not possible in the current state of the art the ignition of explosive atmospheres must be prevented and the effects of any explosion kept within acceptable limits; whereas employers have a duty to make provision for all necessary safety measures and systems;

Whereas Directive 94/9/EC, which applies without restriction from 1 July 2003, divides the equipment and protective systems which it covers into equipment groups and categories; whereas the present Directive provides for a classification of the places where explosive atmospheres may occur in terms of zones; whereas this classification is to be carried out by the employer and relates to the place of use;

Whereas the requirements formulated in this Directive may not be adequate in all cases to prevent danger from hazards due to explosive mixtures under conditions other than atmospheric conditions or with co-reactants other than air, so that further measures are required;

Whereas the scope of this Directive does not include medical facilities used directly for the treatment of patients, where particular importance attaches to the protection of patients in addition to workers' safety and health protection; whereas in such places the minimum requirements laid down in this Directive may not be sufficient in all cases;

Whereas the scope of this Directive does not include the normal use of appliances burning gaseous fuels, since Council Directive 90/396/EEC<sup>5</sup> of 29 June 1990 on the approximation of the laws of the Member States relating to appliances burning

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OJ No L 196, 26.7.1990, p. 15.

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gaseous fuels contains essential requirements concerning the placing on the market and bringing into service of such appliances, which are applicable both to the appliances themselves and to their installation, so as to ensure that the safety of persons, domestic animals and property is not compromised;

Whereas the scope of this Directive does not encompass handling of explosives and chemically unstable substances, since its requirements may not be sufficient in all cases and special measures may therefore be necessary;

Whereas the scope of this Directive does not encompass the mineral-extracting industries as defined in Directives 92/91/EEC and 92/104/EEC, which relate to the protection of workers in these industries and already cover the question of explosion protection; whereas the minimum requirements laid down in those Directives are stricter than those in the present Directive on account of the greater potential hazard in the mineral-extracting industries;

Whereas the scope of this Directive does not encompass the use of means of transport, including sea-going vessels, on which the pertinent provisions of the international agreements (ADR, IMO, etc.) apply, since these already ensure protection of workers,

## HAS ADOPTED THIS DIRECTIVE:

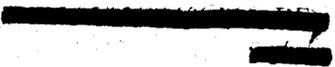
### SECTION I

#### GENERAL PROVISIONS

##### Article 1

##### Subject

- (1) This Directive, which is the ... individual directive within the meaning of Article 16 (1) of Directive 89/391/EEC, lays down minimum requirements for the safety and health protection of workers potentially at risk from explosive atmospheres as defined in Article 2.
- (2) This Directive does not apply to
  - a) medical facilities used directly for the treatment of patients;
  - b) normal use of appliances burning gaseous fuels as defined in Directive 90/396/EEC;
  - c) manufacture, handling, storage and transport of explosives or chemically unstable substances.

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- d) establishments of the mineral-extracting industries covered by Directive 92/91/EEC or Directive 92/104/EEC;
  - e) use of means of transport, including sea-going vessels, on which the pertinent provisions of the international agreements (ADR, IMO, etc.) apply.
- (3) The provisions of Directive 89/391/EEC and the pertinent individual directives are fully applicable to the domain referred to in paragraph 1, without prejudice to more restrictive and/or specific provisions contained in this Directive.

## Article 2

### Definition

For the purposes of this Directive, an explosive atmosphere shall be a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

## SECTION II

### OBLIGATIONS OF THE EMPLOYER

## Article 3

### Principles for the prevention of and protection against explosions

With a view to preventing and providing protection against explosions, the employer shall take technical and/or organisational measures appropriate to the nature of the operation, in accordance with the following basic principles, in order to:

- prevent the formation of explosive atmospheres,
- prevent the ignition of explosive atmospheres,
- reduce the effects of an explosion in such a way that workers are not at risk.

**[REDACTED]**

Article 4

**General obligations**

- (1) To ensure the safety and health of workers, and in accordance with the basic principles laid down in Article 3, the employer shall take the necessary measures so that:
- where explosive atmospheres may arise in such quantities as to endanger the safety and health of workers, the working environment is such, given the appropriate measures, that workers can perform the work assigned to them without danger to their safety and health or to the safety and health of others,
  - responsible supervision is ensured during the presence of workers in working environments where explosive atmospheres may arise in such quantities as to endanger the safety and health of workers,
  - work during which workers may be at risk from explosive atmospheres is carried out only by competent persons or under their supervision,
  - where necessary, workers wear only working clothes or personal protective equipment suitable for use in places where explosive atmospheres may arise in such quantities as to endanger the safety and health of workers.
- (2) Without prejudice to Council Directives 89/654/EEC, 89/655/EEC and 92/57/EEC, the employer shall ensure :
- in accordance with the principle of overall assessment of the place of work, that work equipment and all installation materials are suitable for use in places where explosive atmospheres may arise and are so erected, installed and assembled that they do not give rise to an explosion risk;
  - that the measures required under Article 3 are combined or supplemented as necessary and that the necessary measures against the propagation of explosions are taken;
  - where necessary, that appropriate emergency routes are indicated and escape and rescue facilities are provided and maintained to ensure that workers can leave endangered places promptly and safely in the event of danger.

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- (3) Following an appropriate health and safety policy, the employer shall ensure that a health and safety plan for explosion protection measures, hereinafter referred to as the "explosion protection document", satisfying the pertinent requirements of Articles 6, 9 and 10 of Directive 89/391/EEC, is drawn up and kept up to date.

The explosion protection document shall demonstrate in particular:

- that the explosion risks incurred by the workers have been determined and assessed;
- that adequate measures will be taken to attain the aims of this Directive;
- that the workplace and work equipment including warning devices are designed, operated and maintained with due regard for safety;
- that, in accordance with Directive 89/655/EEC, arrangements have been made for the safe use of work equipment.

The explosion protection document shall be drawn up prior to the commencement of work and be revised if the working environment, in particular the workplace, work equipment or organisation of the work, has undergone significant changes, extensions or conversions.

- (4) Where workers from several undertakings are present at the same workplace, each employer shall be responsible for all matters under his control.

The employer responsible for the workplace in accordance with national law and/or practice shall coordinate the implementation of all the measures concerning workers' safety and health and shall state, in his explosion protection document, the aim of that coordination and the measures and procedures for implementing it.

The coordination shall not affect the responsibility of the individual employers as provided for in Directive 89/391/EEC.

#### Article 5

#### **Places containing explosive atmospheres**

- (1) The employer shall specify in the explosion protection document the places to which the minimum requirements laid down in Annex II apply.

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He shall classify places where explosive atmospheres may occur in accordance with Annex I.

- (2) In respect of the places covered by paragraph 1, the employer shall ensure compliance with the relevant provisions of the minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres as laid down in Annex II.

Annex IV provides guidance on the performance of work in the various zones.

- (3) Where necessary, places where explosive atmospheres may arise in such quantities as to endanger the safety and health of workers shall be marked with signs at the points of entry to them, in accordance with Annex III.

#### Article 6

#### **Worker information**

Without prejudice to Article 10 of Directive 89/391/EEC, workers and/or their representatives shall be informed of all measures to be taken concerning safety and health at work, in particular those taken in pursuance of Articles 3 to 5 of this Directive.

#### Article 7

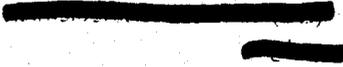
#### **Consultation and participation of workers**

Consultation and participation of workers and/or of their representatives shall take place in accordance with Article 11 of Directive 89/391/EEC on all matters covered by this Directive.

#### Article 8

#### **Training of workers**

Without prejudice to Article 12 of Directive 89/391/EEC, the employer shall take the necessary steps to ensure that workers potentially at risk from explosive atmospheres receive appropriate training, in particular in pursuance of Articles 3 to 5 of this Directive.



Article 9

**Special requirements for work equipment and workplaces**

- (1) Work equipment for use in places where explosive atmospheres may occur which is made available in the undertaking or establishment for the first time after the entry into force of this Directive and up to 30 June 2003 shall comply with the minimum requirements laid down in Annex II A, if no other Community directive is applicable or is so only partially.
- (2) Work equipment for use in places where explosive atmospheres may occur which is made available in the undertaking or establishment for the first time after 30 June 2003 shall comply with the minimum requirements laid down in Annex II A and B.
- (3) Workplaces which contain places where explosive atmospheres may occur and which are used for the first time after the entry into force of this Directive shall comply with its minimum requirements.
- (4) Where work equipment and workplaces which contain places where explosive atmospheres may occur are already in use before the entry into force of this Directive, they shall comply with its minimum requirements no later than three years after its entry into force.
- (5) If, after this Directive enters into force, any modification, extension or restructuring is undertaken in workplaces containing places where explosive atmospheres may occur, the employer shall take the necessary steps to ensure that these comply with this Directive's minimum requirements.

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**SECTION III**  
**MISCELLANEOUS PROVISIONS**

Article 10

**Adjustments to the Annexes**

Purely technical adjustments to the Annexes of this Directive made necessary by

- the adoption of directives on technical harmonisation and standardisation in the field of explosion protection,

and/or

- technical progress, changes in international regulations or specifications, and new findings on the prevention of and protection against explosions

shall be adopted in accordance with the procedure laid down in Article 17 of Directive 89/391/EEC.

Article 11

**Vademecum**

A vademecum shall be drawn up in agreement with the Council, describing some possible ways of complying with the minimum requirements contained in this Directive. Modifications and supplements to the vademecum shall be adopted in accordance with the procedure laid down in Article 17 of Directive 89/391/EEC.

Article 12

**Final provisions**

- (1) Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than 31 December 1997. They shall forthwith inform the Commission thereof.

When Member States adopt these provisions, these shall contain a reference to this Directive or shall be accompanied by such reference at the time of their official publication. The procedure for such reference shall be adopted by the Member States.



## ANNEX I

### CLASSIFICATION OF PLACES WHERE EXPLOSIVE ATMOSPHERES MAY OCCUR

1. **Preliminary note**

The following system of classification shall be applied to places where, as a result of local and operational conditions, an explosive atmosphere may occur in such quantities as to require precautions to be taken in accordance with Articles 3 to 5 of this Directive.

2. **Places where explosive atmospheres may occur**

A place in which an explosive atmosphere may occur in such quantities as to require special precautions to protect the health and safety of the workers concerned shall be regarded as hazardous within the meaning of this Directive.

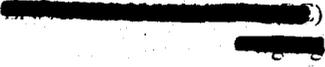
A place in which an explosive atmosphere is not expected to occur in such quantities as to require special precautions shall be regarded as non-hazardous within the meaning of this Directive.

Flammable substances shall be classified as materials which may form an explosive atmosphere unless an investigation of their properties has shown that in mixtures with air they are incapable of independently propagating an explosion.

3. **Classification of hazardous places**

Hazardous places shall be classified in terms of zones on the basis of the frequency and duration of the occurrence of an explosive atmosphere and the assessment of the anticipated effects.

The extent of the measures to be taken in accordance with Annex II A is determined by this classification. The guide criteria for performance of work in the various zones (Annex IV) provide useful information which may be an aid to practical application.

  
**Zone 0**

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is present continuously or for long periods or frequently.

**Zone 1**

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is likely to occur occasionally.

**Zone 2**

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is not likely to occur or, if it does occur, will persist for a short period only.

**Zone 20**

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, for long periods or frequently and in which deposits of combustible dust of unknown or excessive thickness may be formed. (Dust deposits alone are not grounds for classification as Zone 20).

**Zone 21**

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air can occasionally occur and in which deposits or layers of combustible dust can generally be present.

**Zone 22**

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur or in which accumulations or layers of combustible dust are present.

## ANNEX II

### A. MINIMUM REQUIREMENTS FOR IMPROVING THE SAFETY AND HEALTH PROTECTION OF WORKERS POTENTIALLY AT RISK FROM EXPLOSIVE ATMOSPHERES

#### PRELIMINARY NOTE

The obligations laid down in this Annex apply

- whenever required by the features of workplaces, workstations, the equipment or substances used or the dangers caused by the activity in question as a result of explosive atmospheres,
- to equipment in non-hazardous places which is required for, or helps to ensure, the safe operation of equipment located in hazardous places.

#### 1. Organisational measures

##### 1.1 Competent workers

For any workplace, there shall be available a sufficient number of workers with the requisite skills, experience and training to perform the explosion protection tasks assigned to them.

##### 1.2 Written instructions and permits to work

Where required by the explosion protection document

- written instructions specifying the rules to be observed shall be issued for every workplace, taking into account the size of the operation and nature of activities,
- a system of permits to work shall be applied for carrying out both hazardous activities and activities which may interact with other work to cause hazards.

Permits to work shall be issued by a person with responsibility for this function prior to the commencement of work.

1.3 Regular review of safety and health measures

The employer shall ensure that the measures taken to protect the safety and health of the workers are reviewed regularly, at least once per year, to ensure compliance with this Directive.

2. Assessment of explosion risks

2.1 Any assessment of explosion risks shall be based on

- the likelihood that explosive atmospheres will occur and their persistence,
- the likelihood that ignition sources will be present and become effective,
- the scale of the anticipated effects.

2.2 Ignitability shall be assessed by taking into account, in particular,

- the possible degree of dispersal of flammable substances,
- the possible concentration of flammable substances in air within their explosion limits.

2.3 Explosion risks shall be assessed overall.

The following are of particular importance:

- installations,
- substances used,
- processes,
- possible interaction, including interaction with the working environment.

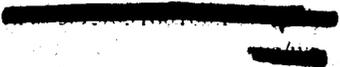
2.4 Working areas which are or can be connected via openings to places in which explosive atmospheres may occur shall be taken into account in assessing explosion risks.

3. Planning principles

3.1 When planning new installations or the modification of existing ones, attention shall be paid, in particular, to

- normal operating conditions, including maintenance work,
- constructional factors,
- commissioning and decommissioning,
- malfunctions, foreseeable fault conditions,
- misuse which may reasonably be anticipated.



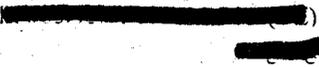
- 
- 4.5 If the way in which portable appliances are used is such that they may be operated in places with different degrees of potential danger, appropriate organisational measures shall be taken to ensure safe operation; otherwise such appliances shall be selected on the basis of the most unfavourable conditions of use.
- 4.6 It shall be ensured that only those measuring instruments for recording explosive atmospheres are used which offer the reliability and accuracy appropriate to the actual conditions of use.
- 4.7 Before explosion conditions are reached, it shall still be possible for the necessary explosion protection measures to be carried out in safety. Workers shall be given optical and/or acoustic warnings and, where necessary, withdrawn.
- 4.8 Protection systems providing explosion pressure relief shall safely divert the explosion pressure and any substances released.
- 4.9 Any gases released which may give rise to explosion hazards shall be suitably evacuated.
- 4.10 Deposits of explosible dusts given rise to explosion hazards shall be removed or rendered harmless.
- 4.11 Where additional risks may arise if the power supply to equipment and protective systems is interrupted, it shall be possible to maintain them in a safe state of operation independently of the rest of the installation.
- 4.12 Manual override shall be possible in order to shut down the equipment and protective systems incorporated within automatic processes which deviate from the intended operating conditions.

Only competent persons may take such action.

- 4.13 When the emergency shutdown is actuated, accumulated energy shall be dissipated or insulated as quickly and as safely as possible so that it no longer constitutes a hazard.

This does not apply to electrochemically-stored energy.

- 4.14 Before a workplace containing places where explosive atmospheres may occur is used for the first time, its overall explosion safety shall be checked.  
The requisite conditions for ensuring explosion protection shall be maintained.

- 
- 4.15 Such checks shall be carried out by persons who possess particular expertise in the field of explosion protection as a result of their professional training, experience and current job. Such persons shall be recognised and/or appointed for carrying out checks in a specific field in accordance with national legislation and/or practice.

**B. CRITERIA FOR THE SELECTION OF WORK EQUIPMENT AND INSTALLATION MATERIALS**

If the explosion protection document based on a risk assessment does not state otherwise, work equipment and installation materials for all places in which explosive atmospheres may occur shall be selected on the basis of the categories set out in Parliament and Council Directive 94/9/EC on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres<sup>7</sup>.

**Zone 0**

In Zone 0, Category 1 equipment shall be used which is intended for use in areas in which explosive atmospheres caused by mixtures of air and gases, vapours or mists are present continuously, for long periods or frequently.

**Zone 1**

In Zone 1, Category 2 equipment shall be used which is intended for use in areas in which explosive atmospheres caused by gases, vapours or mists are likely to occur occasionally. Equipment suitable for use in Zone 0 may also be used.

**Zone 2**

In Zone 2, Category 3 equipment shall be used which is intended for use in areas in which explosive atmospheres caused by gases, vapours or mists are unlikely to occur or, if they do, are likely to do so only infrequently and for a short period only. Equipment suitable for use in Zones 0 or 1 may also be used.

**Zone 20**

In Zone 20, Category 1 equipment shall be used which is intended for use in areas in which explosive atmospheres caused by air/dust mixtures are present continuously, for long periods or frequently.

**Zone 21**

In Zone 21, Category 2 equipment shall be used which is intended for use in areas in which explosive atmospheres caused by air/dust mixtures are likely to occur occasionally. Equipment suitable for use in Zone 20 may also be used.



## **Zone 22**

In Zone 22, Category 3 equipment shall be used which is intended for use in areas in which explosive atmospheres caused by dust raised into the air are unlikely to occur or, if they do, are likely to do so only infrequently and for a short period only. Equipment suitable for use in Zones 20 or 21 may also be used.

In accordance with Directive 89/655/EEC, the employer shall ensure that the equipment and installation materials used are suitable for the actual operating and service conditions. Where appropriate, this also applies to working clothes and personal protective equipment.



## ANNEX IV

### GUIDE CRITERIA FOR PERFORMANCE OF WORK

Installations are considered to be in normal operation when they are performing their intended function within their design parameters.

#### **Zone 0**

The presence of workers and performance of work are as a general rule not permissible.

Ignition sources which may become effective during normal operation and even in infrequently occurring cases of malfunction must be avoided.

#### **Zone 1**

The performance of work during which ignition sources may occur during normal operation is permissible only if the precautions for this zone set out in the explosion protection document are applied.

Ignition sources which may become effective during normal operation and in foreseeable cases of malfunction must be avoided.

#### **Zone 2**

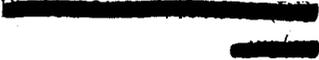
The performance of work during which ignition sources may occur during normal operation is permissible only if the precautions for this zone set out in the explosion protection document are applied.

Ignition sources which may become effective during normal operation must be avoided.

#### **Zone 20**

The presence of workers and performance of work are as a general rule not permissible.

Ignition sources which may become effective during normal operation and even in infrequently occurring cases of malfunction must be avoided.



**Zone 21**

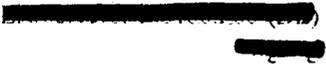
The performance of work during which ignition sources may occur during normal operation is permissible only if the precautions for this zone set out in the explosion protection document are applied.

Ignition sources which may become effective during normal operation and in foreseeable cases of malfunction must be avoided.

**Zone 22**

The performance of work during which ignition sources may occur during normal operation is permissible only if the precautions for this zone set out in the explosion protection document are applied.

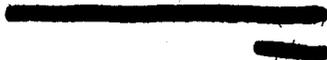
Ignition sources which may become effective during normal operation must be avoided.



## ANNEX V

### NON-EXHAUSTIVE LIST OF SUBJECTS SUPPLEMENTING THE MINIMUM REQUIREMENTS OF THIS DIRECTIVE AND COVERED BY THE VADEMECUM REFERRED TO IN ARTICLE 9

- Layout and contents of the explosion protection document (see Article 4.3)
- Organisational measures (see Annex II A, section 1)
- Assessment of explosion risks (see Annex II A, section 2)
- Planning principles (see Annex II A, section 3)
- Explosion protection measures (see Annex II, section 4)
- Instructions for the zoning of hazardous places (see Annex I)
- Information on pertinent standards relating to work equipment



## IMPACT ASSESSMENT FORM

### THE IMPACT OF THE PROPOSAL ON BUSINESS with special reference to small and medium-sized enterprises (SMEs)

#### TITLE OF PROPOSAL

Proposal for a Council Directive on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres

REFERENCE NO: 427/4/93

#### THE PROPOSAL

#### 1 TAKING ACCOUNT OF THE PRINCIPLE OF SUBSIDIARITY, WHY IS COMMUNITY LEGISLATION NECESSARY IN THIS AREA AND WHAT ARE ITS MAIN AIMS?

##### a) Reasons for Community action

The proposal does not infringe the principle of subsidiarity, as only Community action can guarantee in all the Member States a minimum level of protection of workers potentially at risk from explosive atmospheres and will enable a common threshold to be established, thus precluding social dumping.

The proposed Directive amplifies the Framework Directive 89/391/EEC and supplements Parliament and Council Directive 94/9/EC on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres.

Directive 94/9/EC divides the equipment and protective systems which it covers into equipment groups and categories. If these categories – which correspond to specific levels of protection – are to be applied as intended, the places in which explosive atmospheres may be present must be classified in terms of zones. One of the purposes of this Directive is to create a standard legal basis for such classification.

Directive 94/9/EC does not distinguish between electrical sources of ignition and other, e.g. mechanical, sources. The proposed Directive follows the same approach, thereby ensuring that this universal approach to explosion protection is enshrined in the law in all Member States.

The proposal will encourage greater flexibility in intra-Community employment as workers can be sure to find at least the minimum level of protection for their health and safety in all the Member States.





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As far as competitiveness is concerned, the main question is not the complexity of the proposed provisions but an undertaking's capacity to hold its ground or gain ground in the market in the presence of external factors such as changes in legislation. As the proposal makes no distinction between the undertakings covered, it does not interfere in this process.

On the contrary, alignment on a common minimum standard and the introduction of common zoning criteria will allow companies to compete on more equal terms in the various Member States.

**5 DOES THE PROPOSAL CONTAIN MEASURES TO TAKE ACCOUNT OF THE SPECIFIC SITUATION OF SMALL AND MEDIUM-SIZED FIRMS (REDUCED OR DIFFERENT REQUIREMENTS, ETC.)?**

The basic purpose of the proposal to ensure an acceptable minimum standard of protection for all workers irrespective of the size of the undertaking.

The Directive specifies only the goals to be attained but leaves the employer free to choose the various means of achieving them. He thus has the greatest possible freedom to choose methods appropriate to the place of work, the technology or the size of the undertaking.

**6 ORGANISATIONS CONSULTED AND MAIN THRUST OF THEIR COMMENTS**

The Commission consulted officially the Advisory Committee for Safety, Hygiene and Health Protection at Work and the Safety and Health Commission for the Mining and Other Extractive Industries and took their opinions into due account in drafting the present text.

The Commission also received comments from industrial federations, both European (AEGPL, E&P Forum, Concawe, FEM, CEFIC) and national (CBI, VCI), inspection organisations (CEOC) and ministries and parastatal organisations in the Member States (SZW, HSE, BMA), which were taken into account as far as possible.

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## FINANCIAL STATEMENT

### SECTION 1: FINANCIAL IMPLICATIONS

#### 1 TITLE OF THE PROPOSAL

Proposal for a Council Directive on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres

#### 2 BUDGET HEADINGS INVOLVED

B3-4310: Health protection, hygiene and safety at work, including specific measures in connection with completion of the internal market.

A 2510: Costs involved in convening the committees which must be consulted under the obligatory procedure for the drafting of Community acts (adaptation committee as envisaged in Article 17 of Directive 89/391/EEC).

A 2531: Advisory Committee on Safety, Hygiene and Health Protection at Work.

#### 3 LEGAL BASIS

- Article 118a of the EC Treaty.
- Directive 89/391/EEC (OJ No L 183 of 29 July 1989, p. 1).
- Council Resolution of 21 December 1987 on safety, hygiene and health at work and Commission communication on its programme concerning safety, hygiene and health at work (OJ No C 28 of 3 February 1988).
- Directive 94/9/EC (OJ No L 100 of 19 April 1994, p. 1).



5 **CLASSIFICATION OF EXPENDITURE**

5.1 NCE.

6 **TYPE OF EXPENDITURE**

6.1 100% funding.

7 **FINANCIAL IMPACT ON APPROPRIATIONS FOR OPERATIONS (PART B OF THE BUDGET)**

7.1 **Calculation method**

*7.1.1 Nature of supplementary activities to be undertaken following adoption of the Directive*

- a) Monitoring and appropriate supporting measures for application of the Directive in the Member States.
- b) Revision of annexes.

*7.1.2 Type of activities generated under 7.1.1 and their financial impact*

- Research and/or service contracts for:
  - comparison and evaluation of information received by the Commission;
  - study of problems arising from application of the Directive;
  - study of problems arising from the annexes, and preparatory work for their adaptation.
- Costs incurred in connection with consultation meetings with experts.

*7.1.3 Calculation of expenditure*

As only the nature and type of the supplementary activities are known, with no figures or indication of scale, it is impossible to give a precise estimate of expenditure.

Costs are calculated on a man/month unit basis, which currently represents ECU 4 000.



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The cost of inviting a government expert to take part in consultation meetings has been estimated at ECU 460, and for a non-government expert at ECU 630 (per day). Planned expenditure is progressive and spread over several years. The figures given below are overall estimates.

The estimate in respect of item A 2510 (adaptation committee) is based on two meetings of group 3 experts (government experts) in 1998, followed by three meetings per year as from 1999.

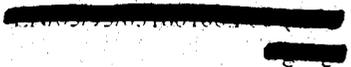
The estimate in respect of item A 2531 (Advisory Committee) is based on two meetings per year of an ad hoc group composed of 12 members, including four government experts, from 1999 onwards.

Item A 2510

	CA (ECU)	PA (ECU)
1997	---	---
1998	22 000	22 000
1999	33 000	33 000
2000	33 000	33 000
2001	33 000	33 000
	-----	-----
	121 000	121 000

Item A 2531

	CA (ECU)	PA (ECU)
1997	---	---
1998	---	---
1999	14 000	14 000
2000	14 000	14 000
2001	14 000	14 000
	-----	-----
	42 000	42 000



### SECTION 3: COST-EFFECTIVENESS ANALYSIS

#### 1 OBJECTIVES AND CONSISTENCY WITH FINANCIAL PROGRAMMING

##### 1.1 Specific objective of the proposed operation

Implementation of the proposed Directive.

##### 1.2 Is the operation incorporated in the financial programming of the DG for the year concerned?

Yes.

##### 1.3 Broader objective defined in the DG's financial programming

Safety and health at work.

#### 2 GROUNDS FOR THE OPERATION

##### a) Cost

Similar to that of comparable operations in connection with other proposals for directives.

##### b) Spin-off effects

An appreciable spin-off effect of the proposal, which is primarily intended to improve the safety and health protection of workers potentially at risk from explosive atmospheres, will be better protection of workers against fire hazards.

The requirements with regard to organisational measures can also be expected to lead to better organisation of operations in general.

##### c) Multiplier effects

The reasons for expecting spin-off effects could also lead to a multiplier effect in the private sector in the Member States.

[REDACTED]

### 3 MONITORING AND EVALUATION OF THE OPERATION

Article 18 of Directive 89/391/EEC and the corresponding articles of all other individual directives pursuant thereto already require the Member States to report to the Commission every five years on the practical implementation of the Directive's provisions, indicating the points of view of employers and workers.

The Commission is required to inform the European Parliament, the Council, the Economic and Social Committee and the Advisory Committee on Safety, Hygiene and Health Protection at Work and to submit periodically to the European Parliament, the Council and the Economic and Social Committee a report on the implementation of the Directive.

The matters covered by the present proposal for a Directive will be included in this report.

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# DOCUMENTS

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