



FURTHER IMPLEMENTATION OF THE
INDUSTRIAL EMISSIONS DIRECTIVE IN SERBIA

Guidance on the new industrial sectors subject to IED





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1. INTRODUCTION

This report intends to be a 'compendium' of existing guidance documents and clarifications to FAQs on the interpretation and implementation of the Industrial Emission Directive (IED). The scope of this report is therefore to become a practical manual for operators, competent authorities and environmental inspectorates for better understanding the methods of evaluating the maximum capacity of an installation in comparison with the thresholds defined in Annex I and Annex VII (part 2) of the IED.

Chapter 2 is a short description of IED, its genesis, scope and objectives.

Chapter 3 reports on the industrial sectors that have been added or modified by the Directive.

Chapter 4 provide general rules and specific considerations for the assessment of quantitative as well as qualitative thresholds. This Chapter mainly refers to the 'Guidance on Interpretation and Determination of Capacity under the IPPC Directive' of the EU Commission and the 'IED-TG-09 – Guidance on PPC Activity Capacity / Threshold – July 2018' of SEPA (Scottish Environmental Protection Agency) that have been adapted to this report.

Chapter 5 contains general and specific considerations and clarifications about the evaluation of maximum capacity for industrial sectors included in the IED, and it refers to the FAQs of the EU Commission and of some member state, namely Italy, Scotland, England, France.

Chapter 6 includes examples, for new IED sectors, of calculation of the maximum capacity when comparing it with a quantitative threshold; this example refers to the SEPA Guideline mentioned above and it was adapted to this report.

Annex 1 contains a useful table to compare categories of Annex I of IPPCD and IED.

Annex II contains a useful table for the transcoding of waste between IED and Waste Framework Directive.

2. INDUSTRIAL EMISSION DIRECTIVE

The Industrial Emissions Directive 2010/75/EC (IED) was adopted on 24 November 2010 and came about as a result of a review of European legislation on industrial emissions. The IED or Industrial Emissions Directive replaces seven existing directives, namely:

- The Integrated Pollution Prevention and Control Directive (IPPC)
- The Large Combustion Plant Directive (LCP)
- The Waste Incineration Directive (WID)
- The Solvent Emissions Directive (SED) and
- The three existing directives on titanium dioxide

The main innovative concepts have been:

- the extension of the scope for IPPC activities;
- the issue of the 'BAT conclusions' (reference documents - EU decisions setting the new operating conditions and limit values);
- the frequency of environmental inspections;
- the overcoming of the concept of renewal in favour of that of 're-examination with the value of renewal' that is foreseen by the Competent Authority.

Key principles concern:

- evaluation of the different aspects to limit the passage of the pollution from a sector to another;
- overcoming the command and control approach with the involvement of the operator, as an active and proactive subject;
- the development of a monitoring plan by the company that covers the whole validity of the authorization;
- the transparency of the process and the involvement of the public and all stakeholders;
- publication of the results of inspections and monitoring.

2.1 Structure of the IED

The IED consists of seven chapters. Chapter I and VII apply generally. Chapter II only applies to Annex I activities (not generally to waste (co-) incinerators or solvents installations). The remaining chapters contain specific rules and apply to specific areas, such as combustion plants, waste incineration plants, installations and processes using organic solvents and the titanium dioxide industry. The structure is similar to the previous IPPC Directive and other six sectorial directives, that lay down specific minimum requirements, including emission limit values for certain industrial activities (large combustion plants, waste incineration, activities using organic solvents and titanium dioxide production). By adopting the IED, generally speaking, the environmental standards have been elevated from the Directives which are being replaced.

The IED contains also an extensive and complex set of transitional rules and rules on transposition that served to regulate the period after its entry into force (Article 80-82).

Chapter I (Articles 1 to 9) contains common provisions dealing with the Directive's scope and definitions as well as to granting, operating and controlling a permit. Industrial installations operating activities covered by Annex I of the IED are required to obtain an integrated permit from competent authorities. Moreover, referring to Article 7, the IED contains rules on incidents and accidents and according to Article 8 rules of non-compliance. This Chapter primarily recasts

the IPPC Directive but includes some amendments to the Volatile Organic Compounds Solvents, Large Combustion Plants and Waste Incineration Directives. This Chapter applies to all industrial activities covered by the IED.

Chapter II (Articles 10 to 27) gives specific provisions for activities listed in Annex I of the IED. Annexes I to IV concern categories of industrial activities referred to in Article 10 (Annex I), list of polluting substances (Annex II), criteria for determining best available techniques (BATs) (Annex III), and public participation in decision-making (Annex IV).

The various articles in this Chapter define obligations of the operator, applications for permits, best available techniques and best available techniques reference documents, permit conditions, emission limit values, equivalent parameters and technical measures, monitoring requirements, general binding rules, environmental quality standards, developments in best available techniques, changes by operators to installations, reconsideration and updating of permit conditions by the competent authority, site closure and remediation, inspections, access to information and public participation, access to justice, cross-frontier issues and emerging techniques. Effectively, this Chapter recasts the IPPC Directive and amendments to that Directive and as such this Chapter only concerns IPPC activities as now listed in Annex I of the IED.

Chapter III (Articles 28 to 41) and Annex V identify special requirements for combustion plants and primarily recasts the Large Combustion Plants Directive. The various articles in this Chapter relate to scope, aggregation rules, emission limit values, desulphurization rate, transitional national plan, limited life derogation, small isolated systems, district heating plants, geological storage of carbon dioxide, malfunction or breakdown of the abatement equipment, monitoring, compliance, multi-fuel firing combustion plants and implementing rules.

Chapter IV (Articles 42 to 55) and Annex VI deal with waste incineration and waste co-incineration plants updating the provisions set by the former Waste Incineration Directive. The various articles in this Chapter relate to scope, permit applications and conditions, control and monitoring of emissions, compliance, operating conditions, delivery and reception of waste, residues, substantial change and reporting and public information.

Chapter V (Articles 56 to 65) and Annex VII provide specific requirements for installations and activities using organic solvents slightly modifying the contents of former Volatile Organic Compounds Solvents Directive. The various articles in this Chapter relate to scope, definitions, substitution of hazardous substances, control and monitoring of emissions, compliance and reporting, substantial change to existing installations, exchange of information on substitution of organic solvents and access to information.

Chapter VI (Articles 66 to 70) and Annex VIII deal with installations producing titanium dioxide, that are not present in Serbia.

Chapter VII (Articles 71 to 83) defines transitional and final provisions. The various articles in this Chapter relate to competent authority, reporting by member states, review, amendments of annexes, committee procedure, penalties, transposition, repeal, transitional provisions and entry into force of the IED.

2.2 Scope of application of the IED

The scope of the IED is defined in article 2: industrial activities with a major pollution potential referred to in Chapters II to VI.

The IED applies to:

- activities listed in Annex I to the IED and, where applicable, reaching the capacity thresholds set out in that Annex (Article 10);
- combustion plants designed for production of energy, the rated thermal input of which is equal to or greater than 50 MW irrespective of the type of fuel used (Article 28);
- waste incineration plants and waste co-incineration plants which incinerate or co-incinerate solid or liquid waste (Article 42); and
- dry-cleaning and other activities covered by the Volatile Organic Compounds Solvents Directive; these activities are those listed in Part 1 of Annex VII and, where applicable, reaching the consumption thresholds set out in Part 2 of that Annex (Article 56).
- installations producing titanium dioxide (Article 66).

However, article 2 (2) of the Directive, sets out that it does not apply to research activities, development activities or the testing of new products and processes.

3. INDUSTRIAL SECTORS THAT HAVE BEEN ADDED OR MODIFIED BY THE DIRECTIVE

3.1 New activities that have been included in the IED regime

Chapter II of the IED contains the general rules for all activities listed in Annex I. This Annex I shows a great level of resemblance to Annex I to the IPPC Directive, however, a number of new activities have been included:

1. In regard to energy industries (act.1), the gasification and liquefaction of fuels other than coal has been included, provided it exceeds 20MW of total rated thermal input (act. 1.4).
2. In regard to mineral industry (act.2), the production of magnesium oxide in kilns with a production capacity > 50 t/d has been included (act. 3.1c).
3. In regard to waste management (act.5), IED included Mechanical Biological Treatment (MBT) plants, large composting and anaerobic digestion operations, pre-treatment of non-hazardous and hazardous waste for incineration or co-incineration, treatment of slags and ashes, treatment in shredders of metal waste, including waste electrical and electronic equipment (WEEE) and end-of-life vehicles and their components (act. 5.3,a,v).
4. treatment of slags and ashes, as well as shredders of metal waste such as WEEE and end of life vehicles/components (act. 5.3,a,v). If the waste treatment activity is anaerobic digestion, the capacity threshold is increased from 75 to 100 tonnes per day. For waste recovery, biological treatment is also included (act. 5.3,a,i). Finally, the IED included underground storage of hazardous waste and temporary storage of hazardous waste (not landfill) pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated.
5. In regard to other activities, **Wood panels production** such as oriented strand board (OSB), particleboard or fibreboard with a production capacity exceeding 600 m³ per day is included (act. 6.1 c).
6. The capture of CO₂ streams from installations for the purpose of geological storage pursuant to the CCS Directive 2009/31/EC is also covered (act. 6.9).
7. The IED also covers the **preservation of wood and wood products** with chemicals with a production capacity exceeding 75 m³ per day other than exclusively treating against sapstain (act. 6.10).
8. **Independently operated treatment of wastewaters** not covered by Directive 91/271/EEC (urban wastewaters) and discharged by an installation subject to Chapter II (act. 6.11) has been included.

3.2 PPC activities that have been amended in the IED regime

IED also introduced some changes to the description of industrial activities subject to the previous IPPC Directive. In particular, regarding **chemical industry** (act. 4) the IED removed the distinction between 'basic' or 'non-basic' chemicals and made clear that biological processing of

substances shall be included in the definition. It has been also clarified that the production of chemicals used as fuels or lubricants is explicitly included. Moreover, in the production of organic chemicals, the resins fall only if epoxy and, finally, in the production of pharmaceutical products, intermediates are also included.

As regards **waste management (act.5)**, the IED included specific operations for the disposal and recovery of non-hazardous waste, it extended the types of recovery operations for hazardous and non-hazardous waste; moreover, incineration of all non-hazardous waste is now subject to the Directive.

In regards to the **food industry (activity 6.4)**, the IED highlights the exclusion of packaging activity for act. 6.4b while it states that “products” should be intended for both human and animal consumption. Moreover, for act. 6.4b, IED adopts a dynamic definition of the threshold in case of mixed use of raw materials from vegetable and animal origin, both in combined or separate products, with a finished product production capacity in t/day greater than:

- 75 if A is equal to 10 or more; or,
- $300 - (22,5 \times A)$ in any other case

where ‘A’ is the portion of animal material (in percent of weight) of the finished product production capacity.

Finally, for activities using only vegetable raw materials with a production capacity (finished product) greater than 300 t/day, IED consider a new wider threshold of 600 t/day if the installation operates for a period of no more than 90 consecutive days in any year.

4. SPECIFIC CONSIDERATIONS ON THE CAPACITY THRESHOLDS AS MODIFIED BY IED

Any operator should determine if its activities are subject to IED regime and, consequently, if it needs an Integrated Permit to operate. In some cases Annex I of IED provides only a description of the activity subject to the Directive, in which case every company operating that kind of process shall be included in the Directive's regime.

But for the majority of the listed sectors, Annex I defines a threshold that represents a term of comparison to find out if the activity shall be considered subject to the Directive's requirements. In these cases, the Directive identifies a specific quantity that can be defined as quantitative threshold. These thresholds are expressed in terms of:

- (a) processing or production capacity;
- (b) rated thermal input;
- (c) holding capacity (i.e. size) of plant item(s);
- (d) quantity actually processed, produced, or consumed.

4.1 General rules for the application of quantitative thresholds

In order to define a methodology for the comparison of any industrial activity with the quantitative thresholds defined by IED, some general rules are described within this chapter.

Installed Capacity

Installed Capacity is relevant for threshold types (a) to (c) listed above. Types (a) and (c) make explicit mention of capacity, and the definition of rated thermal input (b) relies on the capacity of a device to consume fuel. Type (d) is often expressed relative to a specified time period, such as solvent consumption in a year.

Installed capacity is not the actual throughput of an installation, instead is the potential capacity of the process based on maximum possible utilisation of the plant operating at 24 hours a day, 7 days a week, 52 weeks of the year, minus all process steps that limit the throughput of a process such as loading, unloading, cleaning between process batches, etc., and subject to any technical or legal restrictions in place.

Therefore, where a threshold is mentioned in an activity description, the only relevant consideration for capacity is whether the installed capacity exceeds the threshold.

The European Commission provided Guidance on determining capacity for the purposes of the IPPC Directive, and it has confirmed that this guidance remains valid for the purposes of the IED (see Reference).

Multiple Activities

The sum of the capacities of all the activities within the same description carried on by the operator(s) at a site is used to determine whether an individual activity exceeds a threshold. Therefore, even when the capacity of any activity individually does not meet a threshold, it must still be included in the summed capacity, and therefore the aggregation rules may result in such an activity being deemed to meet the description.

If activities covered by the same description are operated by two or more operators, the capacities of all of these activities must still be summed, with the exception where the aggregated combustion capacity has a rated thermal input of 50MW or more. The preamble to Annex I in the IED has removed the reference to 'the same operator' that featured in the IPPC Directive.

Net vs Gross Quantities

The quantity that needs to be taken into account is the net amount of the material specified in the threshold, i.e. excluding any containers, packaging, etc. However, unless specifically stated to the contrary, where a diluent (such as water or an organic solvent) is added to a material, this should be included within the net amount.

Finished Product

Some activity descriptions are framed in terms of the quantity of a finished product. For the purposes of comparison with a threshold defined in such terms, any product that will not be subject to further processing on the installation is considered a finished product of that installation.

This applies irrespective of whether or not the product is subject to further processing elsewhere, including any part of the same site that is outside the installation boundary. Consequently, if the product is subject to subsequent weight or volume reduction outside the installation, this doesn't affect the calculation of the quantity that needs to be compared with the threshold.

If an activity generates other materials such as wastes or by-products, these are not included as they are not considered as finished products. However, where the process results in two or more co-products, all co-products from the process need to be summed to calculate the capacity.

Also, for the purposes of comparison with a threshold the weight, or quantity, of any product shall be assumed in the state as it is produced. Therefore it is a mistake to consider theoretical weights that would result, for example, if the moisture in the product were removed (dry product or matter).

Packaging (primary or secondary) should not be included in the weight of the finished products.

4.2 Specific considerations on quantitative thresholds

Production/Processing/Consumption Capacity

This type of threshold is expressed as a rate (such as tonnes or m³ per hour, day, or year), and may apply to the processing/consumption of inputs/intermediates, or the production of products, referring to the installation as a whole or for a particular activity/machinery.

The Commission's guidance (see References) states that the capacity must be calculated as the maximum rate to which the activity is limited technically or legally, i.e. the capacity when operating at maximum possible throughput for 24 hours a day, 7 days a week, unless the activity is technically or legally restricted from operating in that way.

Where an activity can manufacture different products and/or use different raw materials, the capacity must reflect the product and/or raw materials that would give the highest throughput. In some circumstances, it may be appropriate to consider products and/or raw materials that have not yet been produced/used, but could credibly be produced/used.

The Commission's guidance describes the types of technical and legal restrictions that can be taken into account when determining the capacity for the purpose of comparison with a threshold.

Technical Restrictions

In determining the capacity of an installation, it is appropriate to consider the actual design capacity in conjunction with all process steps that could limit the output of a process. A technical restriction can be either inherent to the activity or introduced specifically in order to limit the throughput below a threshold.

Some typical 'bottlenecks' in the industrial process should be taken into consideration, such as:

- Shut-down time for critical maintenance;
- loading and unloading operations;
- constraints within the process itself:

e.g. overall capacity of a meat processing line may be technically constrained by the installed cooling or freezing capacity of the installation;

e.g. the capacity of the treatment vessel when considered against the volume of timber that can be treated when operating the quickest treatment cycle on the most easily treated wood allowing for loading/unloading and free space.

However, limitations due to operator's choices shall not be considered as 'bottlenecks' in the process. For example, the decision to temporarily stop an available production line for market reasons or cost reduction cannot be considered when calculating the production capacity.

A restriction that is introduced specifically to limit the throughput can take the form of a physical restriction. Examples might include smaller diameter feed pipes, using a smaller feed pump, installing a smaller control valve (e.g. for a steam heating service), and reducing the physical volume of processing equipment (thereby reducing the batch size).

However, the European Commission's guidance makes it clear that such a restriction must be reasonably secure and reliable, and one that could be removed without significant effort would not suffice. Additionally, an IED environmental inspector should be able to inspect and verify continued compliance of any technical restriction without specialistic training.

The Commission's guidance also states that a simple undertaking from the operator that it would not exceed the threshold cannot be relied upon.

Although restrictions must be secure and reliable, there remains a potential that a restriction may be removed or eased by the operator for some reason. If this results in exceeding the production threshold without requiring an integrated permit, the operator will be committing an offence. Accordingly, inspectors may use their powers periodically to check that an adequate restriction still exists. Competent authority may also oblige the operator to provide information about any changes of a specified nature, and a failure to comply with such a notice would be, in itself, an offence.

Legal Restrictions

Even if the technical capacity of an installation exceeds a threshold provided by Annex I, it is possible that the overall capacity is limited below the threshold by legal restrictions so that the

installation does not fall under the scope of the Directive. However, such a legal restriction must be posed by another legal act, not by the integrated permit. Some examples are: restrictions set by Health and Safety legislation, restricted hours of operation imposed by local urban planning, water permit limiting the quantity of effluent that may be discharged, shut-down periods for essential cleaning required as a result of food hygiene regulations.

Contractual agreements do not meet the requirement of regulations and as such cannot be considered legal restrictions.

In terms of legal restrictions, the European Commission's guidance makes a distinction between general and site-specific restrictions. A general restriction covers all installations of a particular type e.g. laws restricting working hours, laws requiring times of noise reduction, traffic restriction times, etc., and does not require periodic inspection and reporting by the operator to the Competent Authority. On the contrary, a site-specific restriction requires periodic inspection and reporting by the operator to the Competent Authority concerning the on-going verification of the capacity.

(Total) Rated Thermal Input

This threshold is relevant for combustion activities, or activities whose scale can be defined by an associated combustion activity.

The Rated Thermal Input (RTI) is the amount of fuel that can be burned at the maximum continuous capacity of the device multiplied by the calorific value of the fuel, expressed as thermal megawatts (MWth). The maximum capacity of the device must be assessed keeping into account possible technical and legal limitations.

The calorific value of a fuel can be expressed as either a net or a gross value. As the net calorific value (NCV) excludes the energy associated with the vaporisation of any water present in the fuel, and the water produced as a result of combustion, it is a lower value than the gross calorific value. It is therefore sometimes referred to as the lower heating value (LHV) or lower calorific value (LCV).

The net calorific value should be used when calculating the RTI of a device for the purpose of comparison with a threshold. Although Annex I does not include the word 'net', the use of NCV can be considered appropriate as it is mentioned in other parts of the Directive's text.

Where different fuels with different calorific values can be used, and a range of maximum thermal inputs can therefore be achieved, the highest possible thermal input must be used when making a comparison with a threshold.

The maximum RTI is normally specified by the manufacturer, and may be displayed on a plate attached to the device. However, if no information from the manufacturer is available, or the manufacturer's information no longer reflects either the fuel in use or the capacity of the appliance, the RTI has to be calculated.

Plant Size or Holding Capacity

This type of threshold generally relates to the 'design' of devices or parts that are used within the process and it is normally defined in terms of volume (e.g. m³ of vats size), holding capacity (e.g. tonnes of stored hazardous waste), or 'places' (e.g. places for sows in intensive rearing installations).

While the volume of a vessel will not change unless it is modified, over time the purpose served by different items of plant can change, and it is therefore not certain that the original design holding capacity will automatically be the current design holding capacity. It is therefore necessary to assess the holding capacity based on records of weight received etc., or calculate the holding capacity of the material held in the plant based on the physical characteristics of the material (e.g. weight and density to assess volume etc.), or records of the number of poultry kept, etc.

5. DESCRIPTION OF THE CHARACTERISTICS OF THE INDUSTRIAL SECTORS

This chapter includes a set of clarifications generally applicable to the calculation of maximum capacity, adapted from the official documents issued by EU Commission after consulting Member States on the first period of implementation of the IED. The following sub-chapters describe different type of consideration, all useful when identifying or calculating the maximum capacity, that are referred to every different sector of Annex I of the Directive.

5.1 General considerations

| TOPIC | Definition of 'Site' |
|-----------------------|---|
| CLARIFICATIONS | <p>With particular reference to art. 3, par. 3 of the Directive:</p> <p>'installation' means a stationary technical unit within which one or more activities listed in Annex I or in Part 1 of Annex VII are carried out, and any other directly associated activities on the same site which have a technical connection with the activities listed in those Annexes and which could have an effect on emissions and pollution.</p> <p>The term 'site' refers to site location of the installation, making reference to the legislation of environmental protection, in particular to the site definition indicated in art. 2, letter t) of Regulation (EC) of the European Parliament and of the Council n. 761/2001 of 19 March 2001 on the voluntary participation of organizations by a Community eco-management and audit scheme (EMAS), which defines the site: «all the land, in a precise geographical area, under the management of an organization that includes activities, products and services. It includes any infrastructure, plant and materials'.</p> <p>Moreover, the E-PRTR defines a 'facility' as meaning one or more installations on the same site that are operated by the same natural or legal person, and defines 'site' as meaning the geographical location of the facility. This suggests that an IED installation operates at a site – i.e. a geographical location – but is not necessarily the only thing at that site. Clearly under the E-PRTR definition – and also under Article 2(9) of the IPPC/IED Directive, which provides that 'A permit may cover one or more installations or parts of installations on the same site operated by the same operator' – there may be several installations operated at the same site by the same operator. In this case, they are to be reported as a single facility (E-PRTR), and may be covered by one permit issued to the operator concerned (IED). Neither of these provisions excludes the possibility of other operators and installations also using the same site, although they would be reported separately under E-PRTR, and also would normally be permitted separately, although some Member States have apparently designed arrangements for a single permit to cover more than one operator.</p> <p>Questions of who owns the land do not seem relevant, since the operator might simply lease the land from another party. Equally, relying on the presence of a fence appears arbitrary and uncertain. Where there is a fence or similar barrier, this might provide a reasonable basis for establishing the boundaries of the site, but this should not provide an artificial constraint on the extent of an installation, nor a possible loophole for operators to try to establish such a</p> |

limitation simply by introducing fencing. For example, a site could reasonably be interpreted as continuing despite a brief physical separation, e.g. because of a road or public right of way passing through the middle of it, which might also involve some fencing. On the other hand, such divided areas would have to be adjacent or at least reasonably proximate in order to remain credibly viewed as a single site for the purposes of IPPC/IED. Moreover, the greater the degree of any physical separation of activities on different areas, the stronger the direct association and technical connection would have to be in order to treat the activities as part of the same site and installation.

To give an example, where raw materials for and final products from a chemical plant are stored in tanks, which are connected to the plant by pipeline, then in accordance with section 5 of this paper these storage activities would appear to very clearly constitute DAAs that are technically connected with an Annex I activity. In the case where the storage tanks are not part of the same physical complex as the chemical reactor or immediately adjacent to it, but are instead located at a nearby harbour, for example, it will be a matter of judgement for the competent authority to decide if they are part of the same site.

TOPIC

Definition of 'Associated activity'

CLARIFICATIONS

With particular reference to art. 3, par. 3 of the Directive:

'installation' means a stationary technical unit within which one or more activities listed in Annex I or in Part 1 of Annex VII are carried out, and any other directly associated activities on the same site which have a technical connection with the activities listed in those Annexes and which could have an effect on emissions and pollution.

For associated activities, technically connected to an IPPC/IED activity operated in a site, it means an activity:

- a) carried out on the same site as the IPPC/IED activity, or on a contiguous site directly connected to the IPPC/IED activity site by means of technological infrastructures functional to the conduction of IPPC/IED and
- b) whose procedures have some technological implications with the methods of carrying out IPPC/IED activity (in particular in the case where their off-duty determine direct or indirect problems to the IPPC/IED activity).

For the purposes of letter a) the technological infrastructures consisting of distribution or collecting networks (such as power grids, water networks, methane pipelines, etc.) are not included, unless they are mainly and priority dedicated to the associated activities, as well as limited to the extension of the site.

For the purposes of letter b), in the case in which the methods of execution of IPPC activity to have technical implications with the other (and not vice versa), IED recognizes the operator (or the operators) the right to ask in any case for consider the production complex as a single installation.

Some general types of non-Annex I activities that may be directly associated with and technically connected to Annex I activities are:

- combustion units that provide heat and/or power;
- activities for the supply, handling and preparation of raw materials used as process inputs;
- activities concerned with the handling of intermediate products (e.g. where there are two Annex I activities and an intermediate activity between them);
- activities concerned with the handling (e.g. finishing, storage) of products; and
- activities concerned with the treatment or storage of by-products, wastes or emissions (e.g. effluent treatment units).

Note that where such a non-Annex I activity has a dedicated relationship to an Annex I activity then it will normally be a DAA. On the other hand, where the non-Annex I activity also relates to other facilities, it will be a matter of judgement whether the non-Annex I activity is considered directly associated with the Annex I activity. For instance, if a combustion unit of less than 50 MW provides most of its output directly to an Annex I activity (such as a chemical reactor), and a small amount to other facilities or possibly the local electricity network, it would still be considered directly associated with the Annex I activity. But if only a small amount of its output were to go to the Annex I activity, with most going somewhere else, it could reasonably be viewed as not being directly associated, since the Annex I activity would not be the major driver for its operation.

In the specific case where several production facilities – only one of which undertakes an Annex I activity – share an auxiliary activity (e.g. heat/power supply, storage of materials, waste treatment, etc.), the auxiliary activity might still be considered as a DAA on the basis of a judgement as referred to in the previous paragraph. However, this would not automatically mean that the other production facilities that additionally use the auxiliary facility also become part of the ‘installation’, since they may not have a direct association with the Annex I activity.

The definition of a technically connected activity is contained in the same definition of installation. The technically connected activity is considered associated even when conducted by a different operator¹.

The Directive explicitly recognises the possibility of providing a permit to operate just part of an installation rather than necessarily the whole of the installation. At the same time, it notes the potential to issue a permit covering two or more installations operated on the same site by a single operator, without actually excluding the possibility of a permit covering more than one operator, or installations operated by the same operator but on different sites.

The possibilities, where an installation has more than one operator, include:

If two or more legal or natural persons share operation of a single installation, they would jointly apply as a single operator and receive a single permit. However, it must be clear in such cases how the persons applying together would exercise joint control of the installation and how the competent authority would enforce the requirement to ensure that the conditions of the permit are complied with.

If the operators operate different parts of the installation, it might still be possible to grant a single permit (as is the case in some Member States) as long as a clear and legally enforceable definition and division of responsibilities can be ensured.

Alternatively, coordination mechanisms could be provided (e.g. integrated evaluation of ac-

¹ Thus, a non Annex I activity would be included in an installation if merited on the basis of being a Directly Associated Activity, technically connected, potentially having an effect on emissions and pollution and being on the same site. These factors will be the same whether or not the non Annex I activity has the same operator as the Annex I activity.

tivities leading to separate but coordinated permits, as is the case in other Member States). The precise arrangements in this area will depend on the legal systems of the Member States. The main definitions of the Directive, and its spirit and objectives, all therefore support the approach of separating identification of the installation from identification of the operator(s). In the case of certain large installations, even when these clearly only have a single operator, it is understood that there are cases where these too are subdivided for the purposes of issuing permits, such that the overall 'permit' for the whole installation consists of several parts. This may be considered desirable for reasons of regulatory practicality, and can still ensure that the installation complies with the requirements of the Directive, provided that suitable integration and coordination mechanisms are put in place for the permitting procedures and conditions.

TOPIC

Considerations about 'Maximum capacity'

Except in cases where the environmental significance of the industrial installation is independent of its size (refineries, coking plants, sintering of metallic minerals, asbestos industry, chemical plants, etc.), the scope of application of the IED is determined by the thresholds indicated in Annex I, with reference to the individual categories of activities, and expressed generally in terms of production capacity.

In this regard (except for the special case of recognized strong seasonality of activities, provided for only some food industries by IED), production capacity must be understood to be the capacity that can be related to the maximum potential pollution of the plant.

According to key concepts set by the IED, the maximum capacity:

1. is not the actual capacity (declared or historical working practice);
2. represents the "worst case" scenario (max potential pollution of the installation);
3. is the production/consumption/treatment carried out when the installation operate 24/7 continuously for the whole year, provided that the equipment is not technically or legally restricted from operating in that way (i.e. the plant is not authorized to work during night hours);
4. considers also authorised, but not yet installed, production lines.

Many of the IED categories refer to production capacity, consumption capacity, treatment capacity.

Consumption capacity, produced material or similar criteria, expressed for instance as tonnes per day, are frequently used in Annex I to determine the scope of the IPPC/IED Directive.

It should be noted that it is not considered sufficient/reliable to convert IED daily thresholds into annual thresholds in order to determine capacity. Moreover, no smoothing can be taken into account. For example, in the case of daily capacity, the capacity of the installation must correspond to the daily maximum and not to the annual capacity divided by the number of days worked.

The maximum capacity can be affected by legal (for example limitations placed on a production capacity by legislation, planning permission or permit) or technical restrictions (for example the technical or physical limitations on waste processing capacity as a result of infrastructure or machinery).

Typical of this type of case are limitations deriving from legal obligations, e.g. from Environmental Impact Assessment (EIA) conditions or from different authorizations requirements (i.e. health and safety legislation or prohibition of using backup boilers at the same time).

Two types of such legal obligations are:

a) Obligations with general validity, not specifically aimed at but definitely restricting installation capacity and not requiring further monitoring or reporting, as long as compliance with such a legal instrument can be safely assumed and may be checked for its own sake (e.g.: laws restricting working hours, laws requiring times of noise reduction, traffic restriction times, etc.).

b) Obligations created to limit the capacity of a specific installation. In such cases the operator should demonstrate that the installation does not exceed the maximum allowed capacity, and should monitor and report this to the competent authority (for example annually). The competent authority should also check compliance with the restriction.

Excluding the aforementioned case of legal limit to production capacity, the maximum capacity depends on the technical and management characteristics of the plants and in simple cases corresponds to the 'data plate' of the plant.

In more complex cases, where the activity is characterized by discontinuous process, by different types of products, by multiple production lines of different capacity not used continuously in the same time, maximum capacity should be calculated keeping into consideration the following assumptions:

a) in case of a discontinuous process (batch), the cycle corresponding to the largest production on a daily basis is taken into account, considering the production per cycle and the time per cycle (e.g. textiles/tanneries that usually operate on market demand);

b) in case of different products, the one which determines, during its production process, the greatest contribution to reaching the threshold is considered for the calculation (e.g. food&drink industry – installations processing of animal and/or vegetable raw materials);

c) in the case of sequential processes, the output potential value of the last stage of the process is considered (e.g. food&drink industry – meat processing line);

d) in the case of a plurality of lines (parallel processes), the simultaneous use of all the lines and equipment installed is considered, provided that there are no technological constraints which prevent the plant from operating in this way (e.g. food&drink industry – bakery productions);

e) where the capacity of a specific piece of equipment (or line) is mentioned, then only the capacity of that equipment should be considered in determining whether IED applies (e.g. act. 2.3(a) – hot rolling mills with a capacity exceeding 20 tonnes of crude steel per hour).

Capacity threshold in 'tonnes per day' refer to 24 hours of continuous operation at rated capacity. In sectors such as textiles and tanneries, most installations do not operate continuously for 24 hours a day. Many smaller units do however operate in very close contact with market demand, with the result that normal working hours may be exceeded at very short notice. Declared working practice is therefore an unreliable guide to the real capacity of an installation and does not reflect the pollution potential of the installation.

Where a capacity threshold is specified for the installation as a whole or for a particular activity, when determining the capacity it is appropriate to consider all process steps that could limit the throughput of a process. The necessary time taken to load, unload and clean equip-

ment between process batches, for example, may technically restrict the number of process cycles possible in any 24 hour period and thus restrict the capacity of the whole process. Equally, where one part of a process represents a technical restriction to the throughput of the whole process, this is a valid consideration. For example, the overall throughput of a meat processing line may be technically constrained by the installed cooling or freezing capacity of the installation.

Moreover, where the capacity threshold is specified by reference to a time period (e.g. hot rolling mills with a capacity exceeding 20 tonnes of crude steel per hour) it remains appropriate to take account of technical limitations (e.g. loading, unloading, cleaning) relating to such specific equipment.

Finally, where one operator carries out several activities falling under the same subheading in the same installation or on the same site, the capacities of such activities are added together. In the IED, if a threshold is specified, the capacities of the plants in the same installation continue to be added, with the exception of:

- Incinerators and co-incinerators
- Landfills
- Temporary storage of hazardous waste
- Underground storage of hazardous waste

Art. 29 of IED is dedicated to aggregation rules for LCPs.

For more information on theoretical/actual capacity and on multiple activities see par. 5.1.

For more information on technical and legal restrictions see par. 5.2.

TOPIC

Add-up rule of Annex I

The first provision of Annex I states that 'The threshold values given below generally refer to production capacities or outputs. Where several activities falling under the same activity description containing a threshold are operated in the same installation, the capacities of such activities are added together.' Hence, the provision of Annex I of the IED Directive generally refers to production capacities or output.

For the determination of the total rated thermal input of the combustion plants, the aggregation rules as defined in Article 29 (Aggregation rules) shall apply. Half-hourly average values shall only be needed in view of calculating the daily average values.

| TOPIC | Experimentation activities |
|--|----------------------------|
| <p>Article 2, par. 2 of IED excludes from the scope of the IED research activities or the testing of new products and processes, while the par. 17 of general provisions of IED allows temporary derogations from the emission levels in case of testing of emerging techniques.</p> <p>These exemptions are applicable in the case of trial periods carried out within activities falling within the integrated permit.</p> <p>The exclusions apply in the case of plants whose purpose is exclusively the research, development and experimentation of new products and processes and not the production of a product or the provision of a service.</p> <p>The fact that the product of the activity is subsequently marketed excludes the possibility of applying the exemption for 'research and development activities' and 'testing of new products and processes'. In addition, this exemption must be checked item by item.</p> | |

5.2 Specific considerations on production and processing of metals (act. 2)

| TOPIC | Experimentation activities |
|---|----------------------------|
| <p>Activity 2.6 is: Surface treatment of metals or plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 m³ (definition of galvanic treatments).</p> <p>The volume of 'treatment vats', or treatment tanks, is the volume to compare to the threshold for the subjection to the IED, and concern those process phases that generate alterations of the surface following an electrolytic or chemical process. The tanks required for washing, ultrasound, shot blasting, water blasting, etc. must therefore be excluded.</p> <p>Do not refer to the geometric volume of the tanks, but rather to the volume actually occupied by the soak, provided that this net volume is determined without ambiguity and verified during the inspections.</p> | |

5.3 Specific considerations on chemical industry (act. 4)

TOPIC

Act. 4 Production of chemical products

CLARIFICATIONS

The act. 4 does not include the production of manufactured articles, defined as objects for which the chemical composition is not sufficient to characterize the product qualities. On the other hand, it is included the production of any chemical product (including process intermediates) potentially marketable as such.

For example, the production of plastic granules for sintering is subject to IED, but not the one of continuous polyurethane sheets.

It is also confirmed that the lists and classes of chemical products listed in points 4.1 and 4.2 of Annex I of IED must be considered exhaustive.

Moreover, IED only includes installations in which chemical or biochemical reactions take place. Therefore, installations in which the products undergo only physical processes (such as filtration, distillation, mixing, packaging, etc.) are to be considered excluded.

TOPIC

Act. 4 Industrial scale

If the activity is carried out for 'commercial purposes', it should be considered as production on an industrial scale, even if the material is an intermediate product and therefore not itself traded. By contrast, other activities producing chemicals exclusively for their own consumption - for example domestic, academic or laboratory activities - would not be covered.

'Commercial purposes' may be taken generally to imply that the activity is being undertaken principally as a professional business activity. The existence of a form of trading account associated with the activity, or other such indicators, may illustrate the conduct of a business. If such indicators are absent, for example as may be the case in the small-scale production of 'hand-made soap', it may be concluded that the activity is not being undertaken for 'commercial purposes' and hence is not on an industrial scale.

TOPIC

Act. 4 Chemical processing

'Chemical processing' implies that transformation by one or several chemical reactions takes place during the production process. An activity involving only physical processing (for instance simple blending or mixing of substances that do not chemically react, dewatering, dilution, repackaging of acids/bases) would not be covered.

For activities involving essentially physical processing but to a certain degree some chemical reactions (e.g. the mixing of two or more chemical substances to produce a third one which is then immediately sprayed or painted onto a surface, or where a two-component adhesive reacts to provide the actual adhesive material) a judgement will be required. Such types of activities carried out in places not normally considered to be a chemical installation (e.g. building or repair activities), may be considered to be a physical process.

TOPIC**Act. 4.1 Production of biofuels**

Following clarifications with the EU Commission (DG-ENV), the production of biofuels, by chemical or biological transformation, is to be classified in the categories of activity referred to in point 4.1 of Annex I of the Directive, if carried out on an industrial scale.

TOPIC**Act. 4.5 Production of pharmaceutical products including intermediates**

The Annex VII of IED special provisions apply to the manufacture of pharmaceutical products (Part 1(8)). According to Article 3(15) of Regulation (EC) No 1907/2006 („REACH“) an „intermediate“ means a substance that is manufactured for and consumed in or used for chemical processing in order to be transformed into another substance.

An active ingredient of a pharmaceutical product is not transformed into another substance in the further finishing process (e.g. addition of coagulating agents, starch, sugar, etc) resulting in the final pharmaceutical product. Therefore, the active ingredient cannot be regarded as an intermediate product, but has to be regarded as a pharmaceutical product.

The manufacture of an active ingredient, as well as the manufacture of the final pharmaceutical product (in the form of pills, pastilles, syrup, suppositories, etc), either together or separately, falls within the scope of Annex VII.

5.4 Specific considerations on the waste management (act. 5)

TOPIC**Act. 5 Waste management**

As regards to waste management, it should be noted that, unlike the provisions of the previous IPPC Directive, the operations of disposal and recovery are no longer clearly divided. In fact, some operations, which were subject to IPPC as connected only to the disposal phase (e.g. biological-chemical physical treatment), are currently also for the recovery phase, and others, such as treatment activities in metal waste shredders, are included (over a certain threshold of daily processing capacity), among the new installations subject to IED, as combined disposal and recovery activities.

Under the IED there is a new set of capacity thresholds (daily or annual capacity thresholds) which bring activities under the scope of the IED where these thresholds may depend on the intended destination of the waste. For example, composting of waste now has an associated threshold of 50 tonnes per day if the waste is destined to disposal but if the waste is intended for recovery, or a mix of disposal and recovery, then the threshold is 75 tonnes per day.

HOW IT WAS BEFORE

Operations of non-hazardous waste were included only if finalized to disposal (e.g. biological-chemical physical treatment) and others, such as treatment activities in metal waste shredders and temporary storage of hazardous waste, were not included.

Operations of hazardous and non-hazardous waste were not clearly specified.

TOPIC**Act. 5 Production capacity in waste management**

The legal limit to maximum capacity, in relation to the definition of production capacity in waste management, can be determined either by general rules or by specific provisions explicitly reported in the authorization.

It is considered that in the latter case the application of the legal limit must be linked to specific authorization (waste permit) provisions by which the effective application of the legal limit by the operator can be controlled.

In case there is not a legal limit to the production capacity, this capacity must be assessed and defined in the waste or integrated permit. For example, the capacity of storage can be assessed in consideration of the effective storage capacity available inside the building, net of the areas dedicated to the passage of the vehicles that carry out the waste handling.

In any case, the assessment and control actions included in the permit must necessarily include, among the operator's obligations: the correct keeping of registers or similar instruments where the information required to verify compliance with the legal limit is reported as well as periodic communication of the data that certify compliance with this commitment to the competent authority that issued the authorisation.

TOPIC**Act. 5.1.(b) and 5.3.(a,ii) Physico-chemical treatment of waste**

Since in the table of the IPPC directive, indicating the activities subject to legislation, the categories 5.1.(b) and 5.3.(a,ii) refer to the 'physico - chemical treatment' of waste, the hyphen should be considered alternative in the sense of 'or'.

Therefore, to be subject to IED it is not necessary that both types of treatment (chemical and physical) are operated but it is sufficient that in the installation there is either chemical or physical treatment, provided that the thresholds for these activities are reached.

TOPIC**Act. 5.5 Temporary storage of hazardous waste**

Activities 5.5 is defined as temporary storage of hazardous waste, not covered under point 5.4 (landfill) pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated.

If the final destination of the waste is not a single destination or type of treatment, therefore it can be surely excluded that it may be destined for one of the activities described in points 5.1, 5.2, 5.4 or 5.6, if the deposit can exceed 50 tonnes it falls in the scope of application of IED.

For example, installations carrying out solvent reclamation or regeneration at a capacity greater than 10 tonnes/day may also have a dedicated storage area for the associated hazardous waste. Where the capacity of that dedicated waste storage area is greater than 50 tonnes, then activity 5.5 applies.

The temporary storage of hazardous waste refers to the disposal operation D15 and the recovery operation R13, according to Waste Regulation. The threshold changed from 10 t/d to 50 Mg.

EXAMPLE

An example of estimation of maximum storage capacity could be found in par. 6.1, where case study of act. 5.5 is included.

HOW IT WAS BEFORE

Operations of temporary storage of hazardous waste were not included in the IPPC Directive. Only the activities that exclusively carried out operation D15 of hazardous waste with a potential of more than 10 t/day were subject to IED.

TOPIC**Act. 5.3.(b,iv) Metal waste shredders**

The term 'shredder' in activity 5.3(b,iv) of Annex I of the Directive refers to a device that mechanically determines the reduction in pieces and fragments of waste consisting of a metal object, for the purpose to obtain metal scrap immediately recyclable or recoverable (for example at the foundries, remembering the need of the preventive reclamation of the vehicle).

Plants that perform mere shearing and / or other similar operations such as slicing or cutting of metal parts are not to be considered as 'shredders', so are not included in the IED regime.

HOW IT WAS BEFORE

Treatment in shredders of metal waste was not included in the IPPC Directive.

TOPIC**Act. 5.3.(b,iv) Scrapyards**

The activities of scrapyards are regulated by specific Directive 2000/53/EC on end-of-life vehicles that is not among those replaced by Directive 2010/75/EU on industrial emissions. The collection centre / scrapyard falls within the field of application of category 5.3(b,iv) only if it carries out operations of shredding vehicles already reclaimed in special devices with treatment capacity above the threshold indicated therein. In such cases, all other activities (safety, demolition, pressing) carried out at the installation and technically connected are consequently also subject to authorization. The activity referred to in 5.1 (d), 'repackaging before any of the other activities referred to in points 5.1 and 5.2', shall not be understood as the remediation operation carried out on the vehicle to separate the different wastes of which up.

The 'IED AI (5) 1' FAQ published by the Commission of the European Union (see References) does not provide relevance of the IED categories 5.2, 5.4, 5.5 and 5.6 in the case of activities carried out in self-demolition plants. The possible relevance of these categories, therefore, appears to be atypical for self-demolition (although it could theoretically intervene, for example, if a technically connected preliminary industrial waste deposit is managed on the same site).

The IED 5.1.d category of activity 'reconditioning before one of the other activities referred to in points 5.1 and 5.2' does not include reclamation operations carried out on the vehicle to separate the various wastes it is composed of, which are configured rather as a separation and selection activity, consequently the operation of securing and disposing of end-of-life vehicles is not to be considered as part of the eventual subsequent performance of activities in the IED 5.1 category.

Plants that perform mere shearing and / or other similar operations such as slicing or cutting of metal parts are not to be considered as 'shredders', so are not included in the IED regime.

HOW IT WAS BEFORE

Treatment in shredders of metal waste was not included in the IED.

TOPIC**Act. 5.3(a.iv) and 5.3(b.iii) Slags and ashes**

'Slag and ash' in the definition of points 5.3.a.iv and 5.3.b.iii should be interpreted only as dross of metallurgical processes and ashes from combustion processes, excluding other materials or processes, such as the so-called 'cement slag', or to natural materials such as slag or volcanic ash. With slag and ashes are to be understood those deriving from thermal processes, therefore the 'cement slag' treatment plants as defined by the European Waste Catalogue (EWC) codes 17 01 06 * and 17 01 07 remain excluded.

It should also be clarified that the recovery activities referred to in the IED 5.3.b.iii category encompass exclusively the 'treatment of slags and ashes', and therefore they do not concern the recovery of waste and ash as such, as in the case of cement milling centres that perform operation R5 for the recovery of light ash from combustion processes. In fact, the direct insertion of the ashes in the production or grinding cycle of cement - where the material directly has the chemical-physical and merchandise characteristics that effectively replace other raw materials - does not involve any treatment, as it constitutes a direct recovery operation of matter.

HOW IT WAS BEFORE

Treatments of slags and ashes were not included in IPPC Directive.

TOPIC**Act. 5.3(a.iii) and 5.3(b,ii) Pre-treatment of waste for incineration or co-incineration**

Any operator who carries out operations on waste before delivering it to incineration or co-incineration should be regarded, for the purposes of IED, as carrying out 'pre-treatment of waste for incineration or co-incineration'.

An exception to this definition regards the incidental generation of waste from any waste treatment and the delivery of such incidental waste for incineration.

HOW IT WAS BEFORE

Pre-treatments of waste for incineration or co-incineration were not included in the IPPC Directive.

TOPIC**Act. 5.3(a.iii) and 5.3(b,ii) Storage of waste for incineration or co-incineration**

The storage of waste is a pre-treatment operation.

The term 'pre-treatment' is not defined in the Industrial Emissions Directive. The term 'treatment' is defined in the Waste Framework Directive (2008/98/EC) as: 'recovery or disposal operations, including preparation prior to recovery or disposal'.

The term 'treatment' has the same meaning as 'pre-treatment'.

Disposal and recovery operations are listed (in a non-exhaustive list) in Annex I and II respectively of the Directive. Activities D15 and R13 are storage operations, as follows:

- D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced).
- R13 Storage pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced).

Therefore, the storage of waste is a pre-treatment operation.

If the storage operation takes place in what might be called the supply chain for 'pre-treatment of waste for incineration or co-incineration', then it is IED if overcome the threshold of 50 Mg/d if it only perform D13 operation, 75 Mg/d if it perform R12 or a combination of D13 and R12 operations.

HOW IT WAS BEFORE

Storage of waste for incineration or co-incineration was not included in the IPPC Directive.

TOPIC**Act. 5.4 Landfill**

IED includes landfills (as defined in Article 2(g) of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste) receiving more than 10 tonnes of waste per day or with a total capacity exceeding 25,000 tonnes, excluding landfills of inert waste.

The definition of landfill, as referenced to Article 2(g) of the Landfill Directive, is: a waste disposal site for the deposit of waste onto or into land (i.e. underground), including:

- internal waste disposal sites (i.e. landfill where a producer of waste is carrying out its own waste disposal at the place of production), and
- a permanent site (i.e. more than one year) which is used for temporary storage of waste, but excluding
- facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere, and
- storage of waste prior to recovery or treatment for a period less than three years as a general rule, or
- storage of waste prior to disposal for a period less than one year.

5.5 Specific considerations on food and drink industry (act 6.4)

TOPIC**Act. 6.4a Slaughtering**

Having regard to the scope of both BREF documents on Slaughterhouses and Animal by-products Industries and Food, Drink and Milk Industries, 'slaughtering' activity (act. 6.4a) is considered to end with the preparation of standard cuts for large animals and the production of a clean whole carcasses for poultry. Standard cuts are defined as carcasses, half carcasses, half carcasses cut into no more than three wholesale cuts and quarters. Chilling of the carcass or standard cuts is considered part of slaughtering operation. Moreover, slaughter activity covers also the removal of offal and appendages.

On the other hand, the deboning of carcasses, mincing and packaging for retail etc. at meat installations are considered as food production activities. The production of food from animal raw materials with a finished product production capacity of greater than 75 tonnes/day is an additional activity to the slaughtering activity where it is carried out at the same installation.

TOPIC**Act. 6.4b Production of food or feed**

Newly prescribed activities in the food and drink sector include those installations involved in:

- The production of feed from animal or vegetable raw materials, where finished product capacity exceeds 75 tonnes per day and the process uses 10% or more animal raw material or 300 tonnes per day if only vegetable raw material.
- The production of food or feed from a mixture of animal and vegetable raw materials (both in combined and separate products) at specified daily production capacity (a sliding scale for mixed production in the range 75 to 300 tonnes per day applies where less than 10% animal raw material is used, see Figure 1).

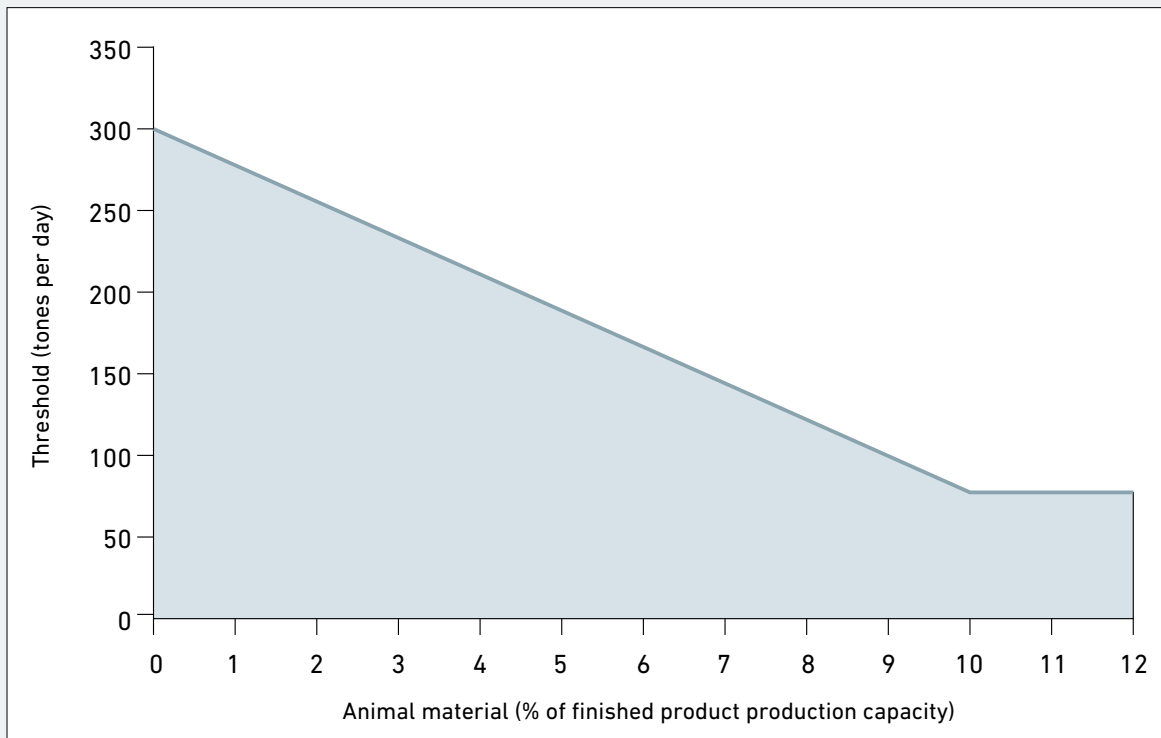


Figure 1 - Sliding scale threshold for mixed production in the range 75 to 300 tonnes per day (Threshold = $300 - (22,5 \times A)$, where 'A' is the portion of animal material (in percent of weight) of the finished product production capacity)

- The production of feed on a seasonal basis of more than 600 tonnes per day for a period of no more than 90 days in any solar year.

EXAMPLE

An example of calculation of maximum production capacity could be found in par. 6.1, where case studies of act. 6.4b are included.

HOW IT WAS BEFORE

Treatment and processing were intended for the production of food products from animal raw materials (other than milk) and vegetable raw materials separately. Mixed production and a related sliding scale threshold were not considered.

TOPIC**Act. 6.4(b,ii) Strongly seasonal productions**

For the purposes of comparison with the thresholds set out in 6.4.b of the Annex I of the IED, the total production capacity of food and feed products shall be considered.

According to point 6.4 (b.ii) of Annex I, the processing and transformation of raw materials intended to manufacture food or feed have two distinct thresholds for the IED discipline (300 Mg / d or 600Mg / d): the second of which must be applied in case of productions strongly seasonal.

These highly seasonal productions are identified by verifying the requirement that 'the installation is in operation for a period not exceeding 90 consecutive days a year'. It is clarified, in this regard, that this requirement admits in the calendar year only one period of operation, lasting no more than 90 days. Some examples of activities that only operated on a seasonal basis are the harvesting of a particular vegetable, fruit or grain.

HOW IT WAS BEFORE

A threshold for strongly seasonal productions in the food and drink industry did not exist.

TOPIC**Act. 6.4b Production of food or feed**

Activities that ARE included:

- Treatment and processing includes blanching, pasteurisation, fat melting, or food milling.
- Treating and processing FROM animal raw materials includes all activities that are part of the process of producing food products from or using animal raw materials. If what is processed is the animal raw material (e.g. fish), as detailed in the Directive, it is clear that all activities that are part of the process of producing food products from animal raw materials are included.
- Raw Materials are any materials, whether processed or not, that are used as ingredients in the activity including by-products or waste from other processes.
- Food products includes those for animal consumption. Feed milling and pet-food manufacture are therefore covered within treating and processing materials for food products from animal raw materials (only) (other than milk).
- Animal raw materials means anything derived from a living or dead animal and includes minerals derived from animal sources, such as bone.
- Milk products used as ingredients are classified as animal raw materials.
- Milk to which something is added is a milk product. Such as whey, butter, cream, buttermilk, condensed milk, flavoured milk or cheese.
- Milk however is not considered as animal raw material for the purposes of activity 6.4b.
- Honey is classed as an animal raw material.
- Vegetable raw materials include fruits, grain and fungi.
- Animal and vegetable products (either combined or separately, e.g. in meat pies) on a sliding scale threshold between 300-75 tonnes per day for 0-10% animal material; and a set threshold of 75 tonnes per day if animal content is >10%.

Activities that are NOT included:

The following activities are excluded from the calculation of finished product production capacity, as they do not produce an irreversible material change:

- Chilling where no other processing activity is undertaken.
- Freezing including pelagic fish freezing.
- Drying, blending e.g. grain drying where no other activity is carried out.
- Bottling of water as water is neither vegetable nor animal raw material.
- Carbonisation of soft drinks where this is the only activity carried out on site. Where sugar, fruit juice, etc. is added then this is clearly vegetable processing. Artificial additives may also be considered vegetable matter and each process should be considered individually.
- Washing, grading where no other processing activity is undertaken.
- Plant health products and pharmaceuticals, many of these are enzymes, and their production is covered by act. 4.4 and 4.5 respectively. Otherwise their production should not generally be included as a listed activity under 6.8 as they are not themselves food products.
- Mineral production (or purification) of any mineral not derived from animal, vegetable or milk (e.g. table salt (sodium chloride), baking soda (sodium bicarbonate), is excluded.

Anyway, where these activities are part of an installation, they will still be included in the integrated permit as part of the stationary technical unit or as directly associated activities.

TOPIC

Act. 6.4b Packaging and storage for ripening of food products

For the purposes of comparison with the thresholds indicated in act. 6.4.b of Annex I, operations which, although not defined as a simple packaging, do not involve treatment and processing of products (such as for example the storage for ripening of food products) shall not be considered.

HOW IT WAS BEFORE

Packaging was not explicitly excluded in the IPPC Directive.

TOPIC

Act. 6.4b Production of feed flours

The use of waste or animal by-products from the food industry to produce feed is considered to be included in category 6.4b - manufacture of feed - and not into category 6.5 - recovery of animal waste, which has different thresholds.

TOPIC**Act. 6.4c Treating and processing milk**

The phrase 'average value on an annual basis has been included to take into account the fluctuating milk output from cows. This means that the average of the actual daily received volumes should be used to calculate the annual average received. Only days when milk is actually received should be considered.

Any process treating and/or processing milk above the activity threshold (based on volume of milk received) will be considered whether or not the end product can be best described as milk. The activity description would also cover non-food production activities if they treat and process milk, and receive milk above the threshold.

For example, manufacturing milk chocolate or chocolate crumb (an intermediate product in the production of chocolate) will fall under this description if it receives more than 200 tonnes of milk per day.

Milk means whole milk, dried milk, skimmed milk, evaporated or unsweetened condensed milk. This definition should not, however, include whey, butter, cream, buttermilk, condensed milk, flavoured milk or cheese. As previously stated, milk to which something has been added constitutes a milk product.

Where dried, unsweetened, condensed or evaporated milk is used the weight should be calculated based on the raw 'wet milk' equivalent state to assess whether the threshold is exceeded. Based on the relevant conversion factors, 200 tonnes of raw milk is equivalent to:

- 25 tonnes of full cream dried milk powder
- 20 tonnes of semi-skimmed dried milk powder
- 18 tonnes of skimmed dried milk powder

"Milk solids" is a loose term that requires qualification and is therefore best avoided. It is preferable to speak in terms of whole (or total) milk solids, skim milk solids, (both of which constitute milk) or whey solids (which constitutes a milk product).

5.6 Specific considerations on wood-based panels production (act. 6.1c)

TOPIC**Act. 6.1c Wood-based panels production**

In the wood-based panel production, the inclusion into IED's scope happens with the following products (if the overall capacity exceeds the threshold 600 m³ per day): oriented strand board (OSB), particleboard or fibreboard.

These are among the common conventional composite products.

Hereafter, two Figures (Figure 2 and Figure 3) describe the classification of wood composite boards and the standards for frequently used panel products.

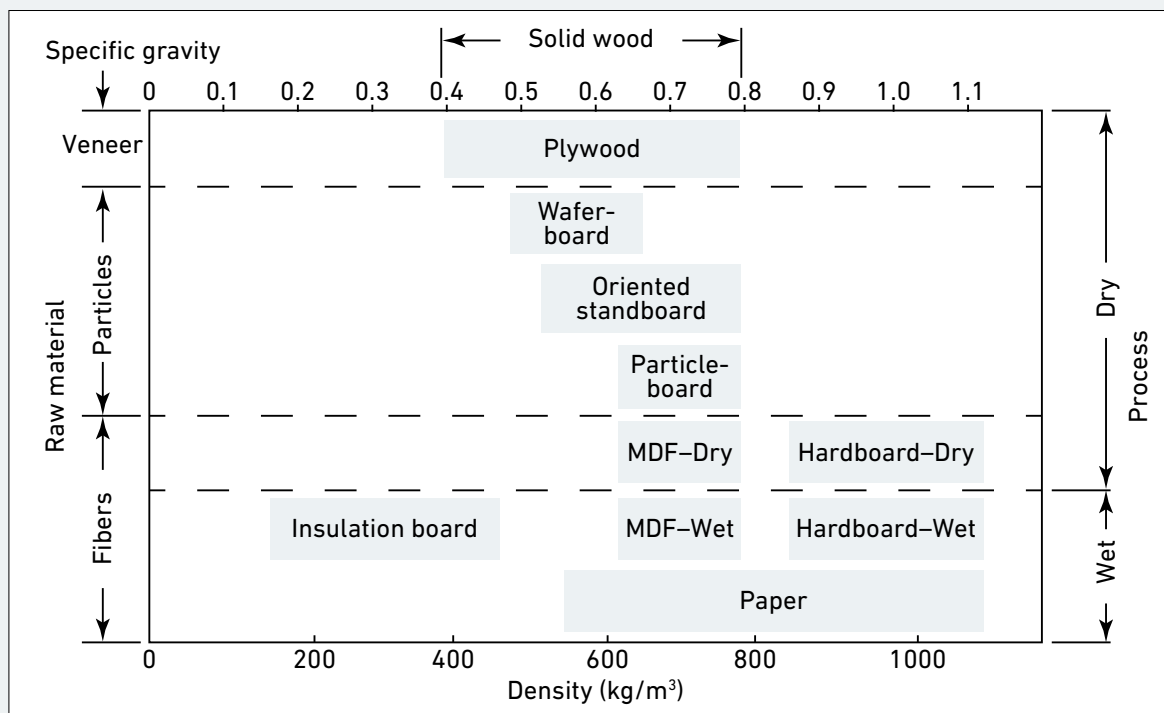


Figure 2 – Classification of wood composite boards by particle size, density, and process type (Suchsland and Woodson 1986).

| Product category | Applicable standard | Name of standard | Source |
|---------------------------|----------------------|---|-------------------------|
| Plywood | PS 1-95 | Voluntary product standard PS 1-95 Construction and industrial plywood | NIST 1995 |
| | PS 2-92 | Voluntary product standard PS 2-92 Performance standard for wood-based structural-use panel | NIST 1992 |
| Oriented standboard | PS 2-92 | Voluntary product standard PS 2-92 Performance standard for wood-based structural-use panel | NIST 1992 |
| Particleboard | ANSI A208.1-1993 | Particleboard | NPA 1993 |
| Hardboard | ANSI/AHA A135.4-1995 | Basic hardboard | AHA 1995a |
| | ANSI/AHA A135.5-1995 | Prefinished hardboard paneling | AHA 1995b |
| | ANSI/AHA A135.6-1990 | Hardboard siding | AHA 1990 |
| Insulation board | ASTM C208-94 | Standard specification for cellulosic fiber insulating board | ASTM current edition |
| | ANSI/AHA A194.1-1985 | Cellulosic fiberboard | AHA 1985 |
| Medium-density fiberboard | ANSI A208.2-1994 | Medium-density fiberboard (MDF) | NPA 1994 |

Figure 3 – Standards for frequently used panel products (John A. Youngquist, Wood-based Composites and Panel Products)

EXAMPLE

An example of estimation of maximum storage capacity could be found in par. 6.1, where case studies of act. 6.1c is included.

HOW IT WAS BEFORE

Production of wood-based panels was not considered in the IPPC Directive.

5.7 Specific considerations on intensive rearing activities (act. 6.6)

TOPIC

Act. 6.6 Intensive rearing (Zootechnical activity)

The main factors that differentiates the zootechnical (intensive rearing) from the industrial activity can be summarized as follows:

- presence of a very simple cycle, but with a series of collateral activities that can foresee the most critical phases from an environmental point of view;
- strong interconnection with the legislation on animal hygiene and veterinary hygiene;
- prevalence of widespread emissions compared to those conveyed;
- in terms of emission limits, it is a biogas product in the same company.

TOPIC

Act. 6.6 Places for sows

European Union Court of Justice ruling no. C-585/10 of 15.12.11 interpreted the expression 'places for sows', in subheading 6.6(c) of Annex I of the IED to mean that it includes places for gilts (female pigs which have already been serviced, but have not yet farrowed).

TOPIC

Act. 6.6 Poultry

The concept of 'poultry' which appears in par. 6.6, in the light of the judgment of the EU Court of Justice of 22 January 2009 on the Cause C-473/07 of 22.01.09, must be interpreted as comprising quail, le partridges, pigeons and more generally all farmed birds.

5.8 Specific considerations on the preservation of wood and wood products with chemicals with a production capacity exceeding 75 m³ per day other than exclusively treating against sapstain (Act. 6.10)

For woodworking, the technical components of the process will not change for different type of products because the only variation is usually related to the duration of the processing cycle. When calculating its maximum capacity, the operator should consider the type of treatment that has the shortest cycle time and should therefore be calculated as follows:-

$$\text{Production Capacity} = N * V$$

Where: **N** = Number of production cycles performed over a 24-hour period

V = Volume of wood treated in each processing cycle

N will also cover the time required to load/unload the plant loading system with timber to be treated as will be a factor in the number of production cycles achieved. This loading and unloading time is directly linked to the on-site operational practices with one-way unloading/reloading rail systems with a single vehicle, which take the longest time, while multi-line automated systems are the fastest. Since vessels are unproductive during loading/unloading, it is normal for this time to be limited.

V is determined by calculating the volume of the treatment surface within the treatment vessel. As each site will only treat wooden packs that are attached to the plant loading system, and since this system is site dependent, it is practical to calculate the volume based on the maximum size of the package using a simple length x width x height.

The value N can be calculated as follow:

$$N = 24 / D$$

Where **D** = duration of each impregnation cycle

Wood impregnation classes

Applicable EU standards (335-1, 351-1 and 599-1) 6 provide guidance on the use of impregnating agents for solid wood and wood products in specified situations. The standards define five classes of use that will be used as the basis for specifying preservative treatments for particular products to guarantee the durability of products in defined situations:

- Class 1 is used in situations where wood or wood product is covered and not exposed to weather conditions and moisture.
- Class 2 is used in situations where wood or wood product is covered and is not exposed to weather conditions, but where high ambient humidity can lead to occasional but not permanent moisture.
- Class 3 is used in situations where wood or wood product at the bottom is not covered and is not in contact with the ground. It is either constantly exposed to the weather conditions or protected from the weather, but is susceptible to moisture.
- Class 4 is used in situations where wood or wood product is in contact with the ground or fresh water and is thus permanently exposed to moisture.
- Class 5 is used in situations where wood or wood product is permanently exposed to salty water.

Classifications range from 1 to 4, where 1 is the shortest cycle time. Cycle time will be further enhanced by wood species, as timber has different ability to absorb chemicals depending on the cellular structure and juice content; however, as a general rule, „redwood“ is the fastest treated timber. Further complications in setting a single time scale for redwood pack undergoing Class 1 treatment relate to the different treatment procedures used in this sector and the wide range of physical limitations related to the diversity of pipes, valves, tanks and pressure vessels.

An example cycle time for redwood treated under Class 1 would be 65 minutes, but whitewood treated under Class 4 can take 295 minutes. Both products will use the exact same technology in the exact same way, only the treatment time will vary.

As chemical suppliers guarantee the effectiveness of the chemical they deliver, they must be able to set treatment cycle conditions for each specific treatment system used at each site to achieve

the required treatment classification, and on that basis, these suppliers will be able to provide cycle times for redwood packs to be treated under Class 1. The locations will also include „charge sheets“ developed by chemical suppliers that identify the processing times for specific products.

5.9 Specific considerations on independently operated treatment of wastewater (act. 6.11)

| TOPIC | Act. 6.11 Independently operated treatment of wastewater |
|-------|---|
| | <p>The activity covered by Council Directive 91/271/EEC of 21 May 1991 concerning the urban wastewater treatment plant is excluded from the activities subject to IED if it only processes wastewater delivered by urban sewage drains, even if these sewage drains also convey industrial waste water from IED installations which comply with the emission limits in the public sewers (they exist in the specific case legislation), e.g. when installations having their own wastewater treatment plants.</p> <p>On the other hand, installations subject to IED include wastewater treatment plants or parts of urban wastewater treatment plants that carry out the pre-treatment necessary to guarantee that industrial wastewater, deriving from IED installations and conveyed through sewage systems, achieves the characteristics that allow it to be discharged into the public sewage system.</p> <p>With reference to the new category of independently operated treatment of wastewater (act. 6.11), it is clarified that if the wastewaters come from several categories of activities subject to IED; the best reference techniques, and correspondingly the BAT-AELs to be considered, are those relating to the IED category to which is chargeable the principal pollutant contribution, identified in line with the indications that, in this regard, will be defined in the framework of the BREFs.</p> |
| | <p>HOW IT WAS BEFORE</p> <p><i>Independently operated treatment of wastewater was not considered in the IPPC Directive.</i></p> |

6. CASE STUDIES INHERENT THE CALCULATION/ESTIMATION OF THE CAPACITY OF INDUSTRIAL INSTALLATIONS INCLUDED IN IED

6.1 Act. 5.5 Temporary storage of hazardous waste

Act. 5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated

Case study no. 1

The installation treats both hazardous and not hazardous waste. This waste consists of solid, liquid and muddy waste originated by the production and use of paints and inks, metal and plastic processing, spent oils, packaging, waste from construction and demolition operations, etc.

The waste operations that take place are R13 and D15, as defined in waste regulation.

Operation D15 is intended as the storage of waste of different types and origins, for subsequent disposal, in the state in which the waste is accepted and without any intervention being carried out at the storage plant both on the waste and on its packaging. This doesn't exclude to the possibility to accumulate the waste in homogeneous loads, provided that this does not lead to a change in the chemical-physical and / or commodity characteristics of the waste or the attribution of a different EWC code.

All the operations take place inside a completely closed, covered and confined structure; this structure is divided into sections, each of which is dedicated to the storage of predefined types of waste.

In order to calculate the maximum storing capacity, the operator has to prepare an accurate description of the functional areas of the site with their identification waste code, together with the structural and dimensional characteristics of the elements making up the plant, as well as - if present - the indication of the requested integrated permit amendments. The description of the plant is reported as follows:

Storage area 1

Area 1 is dedicated to R13 / D15 of hazardous waste (oil). For this purpose, 2 tanks of 12 m³ (internally divided into two compartments totally separated from each other) and 3 m³ are used, each equipped with a suitable containment basin, for a total of 15 m³.

The dimensions of the containment basins are the following:

- 3 m³ tank: L x P x H = 3.8 x 2.5 x 0.4 m corresponding to a volume of 3.8 m³
- 12 m³ tank: L x P x H = 7 x 4 x 0.5 m corresponding to a volume of 14 m³

Storage area 2

Area 2 (with a surface area of 6.75 m²) is dedicated to R13 / D15 in drums and / or bins of oil waste and dangerous aqueous mud; it also has a special containment basin within which the drums and bins used for storage are placed. The area capacity is 5 m³.

Storage area 3

In area 3 (with a surface area of 50 m²), waste such as rags, sanitary towels and packaging, contaminated with dangerous substances, are stored; for this purpose, the area is equipped with boxes and / or big bags within which the waste mentioned above is placed. The available capacity for this type of waste is 70 m³.

Variations with respect to the previously authorized configuration: The available surface has increased from 25 m² to 50 m², the storage capacity has increased from 38 m³ to 70 m³.

Storage area 4

Area 4 (with a surface area of 6 m²) is dedicated to hazardous waste such as oil filters and lead batteries, which are stored in boxes for a maximum capacity of 9 m³ and can be subjected to both R13 and D15.

Storage area 5

D15 operation is conducted in area 5 (with a surface area of 6 m²) and consists of containers for the storage of non-dangerous ashes, for a total amount of 9 m³.

Storage area 6

Area 6 (with a surface area of 10.4 m², subdivided into 6a of 5.6 m² and 6b of 4.8 m²) dedicated to operation D15 for hazardous waste (such as solutions, chemicals, sludge and ink waste, paint residues, etc.) is equipped with special containment basins in which the waste containers are placed. The maximum available volume is 13 m³, divided as follows: 7 m³ for the 6a and 6 m³ for the 6b.

Variations compared to the previously authorized configuration: the total available surface has decreased from 16 m² to 10.4 m², the storage capacity has decreased from 24 m³ to 13 m³.

Storage areas 7a and 7b

Area 7 (with a surface area of 12 m²) is exclusively dedicated to store waste from electrical and electronic equipment and is divided into 2 zones, 7a and 7b, dedicated respectively to dangerous WEEE 7a and non-hazardous WEEE the 7b.

Each area is equipped with a special shelving unit for the storage of waste, and the maximum amount stocked is equal to 18 m³ (9 m³ for the dangerous ones and 9 m³ for the non-dangerous ones).

Storage area 8

Area 8 (with an area of 8 m²) is dedicated to the preliminary deposit of paints, varnishes, solutions, emulsions and dangerous waxes that are delivered to the plant in drums and / or bins, which are stored within a special containment basin. The volume of waste stored in area 8 is 3 m³.

Variations compared to the previously authorized configuration: the available surface has decreased from 12 m² to 8 m², the storage capacity has decreased from 6 m³ to 3 m³.

Storage area 9

Area 9 (with a surface area of 6 m²) consists of a containment basin that hosts hazardous liquid waste such as solvents, mixtures, brake fluids and antifreeze fluids. This waste can be stored either as a reserve or as a preliminary deposit. The total storage capacity is 9 m³.

Storage area 10

The area 10 is characterized by a shed of approximately 6 m² where piles of non-hazardous metal waste are stored. The reserve capacity amounts to 9 m³.

Storage area 11

The area 11 is characterized by a shed of 22 m² where heaps and / or boxes of glass and plastic waste, non-hazardous, are stored. The reserve capacity is 45 m³.

Storage area 12

Area 12 (with a surface area of 6 m²) is dedicated to the operation D15 for non-dangerous paints, oils and paints; it is equipped with a special containment basin and is characterized by a storage capacity of 6 m³.

Temporary storage area 13 (not included in IED)

Area 13, characterized by a surface area of 5 m², is intended for temporary storage of any waste produced by site storage (maintenance operations, cleaning operations, etc.).

The materials under examination, whose quantity can never exceed 10 m³, are subject to taking charge in the loading and unloading register and sent for disposal / recovery at authorized third-party plants.

Storage area 15

Area 15 is dedicated to operation D15 of earth crates and rocks containing dangerous substances. It has an area of 8.5 m² and a maximum storage capacity of 10 m³.

Variations compared to the previously authorized configuration: the available surface has decreased from 13 m² to 8.5 m², the storage capacity has decreased from 19 m³ to 10 m³.

Storage areas 16a and 16b

Area 16 (with a surface area of 15 m²) is dedicated to R13 / D15 of some types of waste (such as brake pads, fluorescent tubes, toners, sanitary napkins, filtering materials, rags) and is divided into 2 areas, 16a and 16b, respectively dedicated to hazardous waste 16a and non-hazardous waste 16b.

Each area is equipped with a special shelving unit for storing waste, and the maximum amount stocked is 20 m³ (10 m³ for hazardous waste and 10 m³ for non-hazardous waste).

Storage area 17

Area 17 is destined for the D15 of dangerous veterinary waste stored in n. 1 wardrobe, with n. 3 shelves each, for the storage of dangerous liquids:

- surface area: 1 m²;
- storage capacity: 1 m³.

The table below reports the storage volume for each area, based on the effective storage capacity available inside the building, net of the areas dedicated to the passage of the vehicles that carry out the waste handling, and the capacity, expressed in tons/year. The maximum capacity has been calculated on the basis of the estimated average density of each type of waste and the maximum yearly turnover (the number of times that the entire storage capacity is filled and emptied, sending the waste to recovery or disposal). These values has been provided by the operator, based on technical data and market research.

| AREA (Stored material) | | Volume Hazardous waste | Volume Non- hazardous waste | Maximum Storage Capacity (tons) | Maximum Storage Capacity (tons) | Yearly Capacity (tons/y) | Yearly Capacity (tons/y) |
|---------------------------|---------------------|------------------------------|--------------------------------------|--|--|--------------------------------|--------------------------------|
| 1 | oils | 15 | | 10 | | 180 | |
| 2 | mud | 5 | | 6 | | 60 | |
| 3 | solid | 70 | | 80 | | 850 | |
| 4 | filters | 9 | | 12 | | 100 | |
| 5 | ashes | | 9 | | 15 | | 15 |
| 6 | liquid chemicals | 13 | | 13 | | 150 | |
| 7a | WEEE | 9 | | 12 | | 110 | |
| 7b | WEEE | | 9 | | 12 | | 15 |
| 8 | liquids | 3 | | 3 | | 40 | |
| 9 | liquids | 9 | | 9 | | 110 | |
| 10 | metal | | 9 | | 15 | | 15 |
| 11 | glass/plastic | | 45 | | | 50 | |
| 12 | paints | | 6 | | 5 | | 10 |
| 15 | soil | 10 | | 15 | | 120 | |
| 16a | solid waste | 10 | | 13 | | 120 | |
| 16b | solid waste | | 10 | | | 13 | |
| 17 | veterinary | 1 | | 2 | | 10 | |
| TOTAL | | 154 | 88 | 175 | 110 | 1850 | 150 |
| | | 242 | | 285 | | 2000 | |

According to the data, the maximum storage capacity of the installation is equal to 285 tons, above the threshold of Annex I, and the installation obtained an integrated permit with authorized capacity of 2,000 t / year of storable waste, corresponding to about 7 t / d.

Case study no. 2

The activity carried out in the installation consists of storage (R13 and D15) of hazardous waste originated from the demolition of buildings containing asbestos roofs or other building elements and non-hazardous waste from various sources.

In particular, the recovery / disposal operations for which the operators requires a permit are:

- D15 of hazardous waste before one of operations D1 to D14;
- R13 of non-hazardous waste prior to one of operations R1 to R12;
- D15 of non-hazardous waste before one of operations D1 to D14.

The waste is sent to the installation every day by one truck (max. Capacity 19 tons); the waste arrives already packed in suitable cellophane film or big-bags, is checked at the entrance and, if compliant, stored inside the shed used for storage in the areas of competence. Finally, the waste is loaded onto a vehicle (with a maximum capacity of 24 tons) with a frequency of 2 deliveries a week.

The operations are carried out in such a way that the flows entering and leaving the warehouse are handled without causing interruptions to the activities and the consequent service offered to the territory.

Inside the shed, 2 distinct areas are identified for the storage of the different types of waste that can be stored within the site: hazardous and non-hazardous; within these areas the waste is stored divided by EWC code.

Considering the type of services performed in the area and the type of managed waste, the Company is in a position to manage incoming waste streams characterized by a strong variability over time; for this reason, the Company intends to use its own spaces, distinguishing the areas within the various operations for hazardous and non-hazardous waste.

The storage area consists of two functional areas (A1 and B1), physically separated, and a weighing and loading-unloading operations area.

Waste storage is carried out so that hazardous waste is kept separate from non-hazardous waste, and, within the same types, the various EWC codes.

Area A1

Area of approximately 203 m² (23.20 m x 8.75 m) where hazardous waste is stored. All waste is divided by type, marked with labels and separated by EWC codes.

Two storage modes are used:

- waste packed and placed on pallets (mainly asbestos-cement slabs): average pallet size 1.00 m x 1.20 m, max packing dimensions Larg. 2.00 m x Length 1.10 m x H 1.00 m;
- waste confined inside big-bags (large packing containers) with suspenders for lifting; big-bag: 180 gr / mq polypropylene raffia bag; dimensions: 90x90x120 cm (h); 1,000 kg capacity; S.F.6: 1.80 micron inner lining, flat bottom and laminated candy opening.

All hazardous waste is stored in one of these 2 modes, after treatment (with a suitable encapsulant) during site reclamation. So, the waste containing asbestos, on site (during the removal phase), is treated with vinyl encapsulant, packed with plastic and stacked sheets or (for small materials) treated and bagged in big bags; the waste arrives at the warehouse already confined and protected.

Considering the necessity to handle easily and quickly the packages, the net available surface has been determined equal to 130 m², where a maximum amount of 40 pallets and 40 big-bags can be stored. Considering that the volume of 1 pallet is 2.2 m³ while it is 1 m³ those of the big-bag, the weight can be calculated based on the density of asbestos, equal to 2.45 tons/ m³.

The maximum storage capacity for hazardous waste, is then, equal to:

Pallets: $40 \times 2.2 \times 2.45 = 216$ tons

Big-bags: $40 \times 1 \times 2.45 = 98$ tons

which is totally equal to 314 tons.

Area B1

Area of approximately 132 m² (17.45 m x 8.45 m), in which non-hazardous waste is deposited. All waste is divided by type, marked with labels and separated by EWC codes.

In this case the net available surface is equal to 90 m² but the waste is stored on shelves, for a total volume of 200 m³. The stored waste is non homogeneous so it is assumed an average density of 1.5 tons/ m³.

The maximum storage capacity, therefore, is equal to 300 tons of non-hazardous waste.

The sum of hazardous and non-hazardous waste brings the total storage capacity to 614 tons which is above the threshold for activity 5.5.

6.2 Act. 6.1c Wood-based panels

Case study no. 1

The management and production structure of Company consists of three production divisions:

1. the Panels or Plaxil Division; in which an IED activity takes place, identified as activity 6.1(c) of Annex I of IED, of production and marketing of raw and melamine-faced panels of wood fibre M.D.F. and chipboard, and the ancillary activity of waste recovery.
2. the Furniture Division, in which the secondary activity of planning and production of fitted office furniture and walls, supplied by the Plaxil division;
3. the Glue Division, in which an IED activity takes place, identified as activity 4.1 (b) of Annex I of IED, of formaldehyde production (IED activity) starting from methanol, and the connected production of urea and melamine resins (non IED activities). It's a plant not technically connected with the remaining divisions.

Panel Division

In order to assess the maximum production capacity of wood-based panels - IED activity 6.1(c), since the threshold is expressed as daily volume, it is necessary to consider the density of the panels produced. The company declares that:

- For MDF, highest density is 0,85 tons/m³ while lowest density is 0,55 tons/m³
- for chipboard panel, highest density is 0,7 tons/m³ while lowest density is 0,6 tons/m³

According to these data, the following table shows the calculation of the daily volume of produced panels starting from the maximum capacity of the lines, expressed in tons/day:

| Panel Production Line | Maximum capacity in tons/day | Production capacity (high density) [m ³ / day] | Production capacity (low density) [m ³ / day] |
|---|------------------------------|---|--|
| Plaxil 4 (MDF) | 300 | 353 | 545 |
| Plaxil 5 (MDF) | 400 | 471 | 727 |
| Plaxil 6 (MDF with continuous pressing) | 700 | 824 | 1273 |
| Plaxil 7 (Chipboard panel with continuous pressing) | 700 | 1000 | 1,167 |
| Total | | 2,647 | 3,712 |

Glue Division

The production capacity of the glue division - IED Act. 4.1(b) - is the following:

| Formaldehyde production | Production capacity (t / y) |
|-----------------------------------|-----------------------------|
| 37% formaldehyde aqueous solution | 126,000 |

According to the data, the company has to require an integrated permit both according act.6.1c, which will be the primary IED activity, and 4.1b (secondary IED activity).

Case study no. 2

The Company produces wood panels for a production capacity of 210,000 m³ per year of MDF panel, distributed as follows:

| Production Line | NL line | NL3 line | NX line | Total |
|-------------------------------------|---------|----------|---------|---------|
| Annual production (m ³) | 20,000 | 100,000 | 90,000 | 210,000 |

with a consumption of virgin wood raw material for 50,000 t / year, used in the NL and NX lines and a consumption of recycled wood used in the NL3 and NX lines.

The company declared that operations are modulated on 330 working days and in a continuous cycle; the daily maximum capacity can be, then calculated and it is equal to 636 m³/day which is above IED threshold for act. 6.1c.

Case Study no. 3

The main activity of the Company is the production of particle board and chipboard nuts for wooden pallets for which special waste is used consisting of wood and cork waste as well as wooden packaging.

In this context, the company is authorized to store (R13) these types of non-hazardous waste for a maximum amount of 9000 m³/y and to treat this waste with the recovery operation (R3) for a maximum amount of 200,000 t/y.

The company is also authorized to recover (R1) non-hazardous waste (wood dust), both own waste and delivered by other companies, for a total annual quantity of 33,000 t.

Within the installation, 1 IED and 2 non-IED activities are carried out; the following table describes the daily capacity in terms of m³/day, calculated for a 24/7 production and a total amount of 330 working days per year:

| Product Type | | Production capacity | | | |
|--------------|------------------|-----------------------------|-------------------------|----------------------------|-----------------------|
| Order Number | Product | Maximum production capacity | | Actual production capacity | |
| 1.1 | Chipboard panels | 330,000 m ³ /y | 1,000 m ³ /d | 170,000 m ³ /y | 600 m ³ /d |
| 1.2 | Nuts for pallets | 198,000 m ³ /y | 600 m ³ /d | 99,000 m ³ /y | 300 m ³ /d |
| 2.a | R13+R3 | 221,000 t/y | 670 t/d | 150,000 t/y | 450 t/d |
| 2.b.1 | R13+R1 | 16,000 | 50 t/d | 10,000 t/y | <50 t/d |
| 2.b.2 | R13+R1 | 17,000 | 50 t/d | 13,000 t/y | < 50 t/d |

Case Study no. 4

The maximum production capacity of the installation is as follows:

| Product type | Maximum capacity of production (t/y) |
|-----------------|--------------------------------------|
| MDF panel | 400,000 |
| Chipboard panel | 60,000 |
| TOTAL | 460,000 |

The production in tons per year was then divided by 365 working days and by the medium density of the panels to estimate the daily production m³.

| Panel Production Line | Maximum capacity in tons/day | Production capacity (high density) [m ³ / day] | Production capacity (low density) [m ³ / day] |
|-----------------------|------------------------------|---|--|
| MDF panel | 1212 | 1426 | 2204 |
| Chipboard panel | 182 | 260 | 303 |
| TOTAL | 1394 | 1686 | 2507 |

The company is, then, subject to IED both in the case of production of low density panels and in the case of high density.

6.3 Act. 6.4b Food and drink industry

Case study no. 1 - Act. 6.4(b,i) only animal raw materials (other than exclusively milk) with a finished product production capacity greater than 75 tonnes per day

The activity carried out within the installation consists in the production of delicatessen products made through the treatment and transformation of animal raw materials (mainly pork, in smaller part poultry): or mortadella (building H); or cooked ham (building C); or salami (building F).

The operation time is divided into two daily shifts (6:00 ÷ 13:30 and 13:30 ÷ 24:00) for the salami department, while in the departments for cooked ham and mortadella there is only one shift; a night shift is performed exclusively for cooking.

The plant has an overall potential, in terms of finished product, equal to 31,600 t/year on 220 working days (144 t/d). Internal reports, provided by the company, refers to freshly processed product and not to the finished product (having a part of this a time lag, due to the seasoning of the salami, of more than a month compared to the consumption monitoring period of resources).

The production capacity for each of the plant's products is shown below:

| Production capacity | | | |
|---------------------|--------------|------------------------|------------------------------|
| Order no. | Product | Maximum capacity (t/y) | Actual capacity (2016) (t/y) |
| 1.1 | Baked ham | 11,300 | 8,267 |
| 1.2 | Mortadella | 12,000 | 5,980 |
| 1.3 | Salami | 8,300 | 5,976 |
| | Total | 31,600 | 20,223 |

The table shows quantities that refer to the finished product, i.e. cooked / seasoned, packaged and ready to be shipped. This data differs, also considerably, from the processed raw material volumes due to the weight loss of the products that undergo the seasoning process.

Case study no. 2 - Act. 6.4(b,ii) only vegetable raw materials with a finished product production capacity greater than 300 tonnes per day or 600 tonnes per day where the installation operates for a period of no more than 90 consecutive days in any year

The installation produces soft wheat flour and related by-products destined for the bakery, confectionery and other markets.

The installation operates continuously 24/7 for about 300 days a year.

The percentages of extraction of flour and the three by-products (bran, coarse and fine watings) can also vary significantly depending on the characteristics of the ground grains, so the production capacity refers to the raw material processed (wheat) which, except for minimum quantities rejected during cleaning, it coincides with the sum of the products and by-products. The following table shows the data relating to the production capacity of the plant:

| Raw Material | Production capacity | | | | | |
|--------------|---------------------|---|------------------------|-----|------------------------|-----|
| | Maximum capacity | | Actual capacity (2010) | | Actual capacity (2011) | |
| | t/y | t/d | t/y | t/d | t/y | t/d |
| Wheat | 155,125 | 425 (calculated on 365 working days) | 105,258 | 350 | 107,768 | 360 |

Case study no. 3

In the installation of feed mill are feed products for zootechnical use, intended for feeding dairy cows and different pigs and animals. The production capacity of the plant depends on the type of finished product that is produced which can be in the form of flour or pellets. The maximum production capacity of the project comes from considering an exclusive production of feed in flour and has been calculated equal to 125,000 tons a year considering a maximum grinding capacity of 25 t / hour and an annual operation of the plant of about 4700 hours.

Case study no. 4 - Act. 6.4(b, iii) Treatment and processing, other than exclusively packaging, of the following raw materials, whether previously processed or unprocessed, intended for the production of food or feed from animal and vegetable raw materials, both in combined and separate products, with a finished product production capacity in tonnes per day greater than [...]

The installation is a bakery whose products are: puff pastry, croissant, loaves, bread, cakes, plum cake, moon cake. The plant has a maximum production capacity of 511,45 t/d. The plant works in a non-continuous cycle. The following table shows the data relating to the production capacity of the plant, broken down by production line:

| Product Type | | Code production line | Production capacity of the plant | | | |
|--------------|---------------------|-----------------------|----------------------------------|-------|--------------------|-------|
| | | | Maximum Capacity | | Production in 2016 | |
| Order No. | Product | | t / y | t / d | t / y | t / d |
| 1.1 | Croissants and puff | Line 1 | 13,067 | 35.8 | 7209.3 | 29.3 |
| 1.2 | Camilla cake | Line 2 | 8,577 | 23.5 | 1432.5 | 13.1 |
| 1.3 | Bread Satchel 1 | Line 3 | 11,388 | 31.2 | 2984.1 | 20.9 |
| 1.4 | Small bread | Line 4 | 11,169 | 30.6 | 3133.4 | 19.6 |
| 1.5 | Cakes | Line 5 | 8,212 | 22.5 | 2313.7 | 13.1 |
| 1.6 | Plum cake | Line 6 | 15,768 | 43.2 | 7377.6 | 35.6 |
| 1.7 | Bread trunk 2 | Line 7 | 33,507 | 91.8 | 23,012.6 | 79.6 |
| 1.8 | Mooncake | Line 8 | 3,066 | 8.4 | 700 | 5.6 |
| / | [1] | Line Y ^[1] | 40,000 | 109.6 | / | / |
| / | [1] | Z Line ^[1] | 40,000 | 109.6 | / | / |

[1] Authorised lines, but not installed.

Case study no. 5

In the installation enrobed (= chocolate-covered) confectionery products and frozen desserts are produced.

Below is the separation of the plant into production lines with the types of products manufactured indicated:

Line 1 Production and packaging of frozen desserts;

Line 2 Enrobed production and Packaging;

Line 3 Production and packaging of frozen desserts;

Line 4 Enrobed production and packaging.

On several similar lines series of products and packages of similar characteristics are produced, i.e. based on the same production phases.

In order to optimize the use of personnel, new product repackaging activities have been added. This activity does not involve an increase in production, but rather the production of special / ad hoc product packages.

Production is divided into three 8-hour daily shifts. The seasonality of consumption of the different products imposes a cyclical rhythm on the production campaign, which remains substantially stable over the years:

- Enrobed bakery products have their peak production in the August-November period (in which, on some lines, they produce six days out of six and on some plants seven out of seven); in the December-March period production is reduced (on average, the commitment is five

days per week) the sparsest production is in the April-June period; normally the month of July is destined to the partial stop of the lines for vacation and maintenance;

- Frozen desserts bakery products do not have annual production peaks, but the production is based on the weekly market requests; this can involve productions that vary from a minimum of 12 to a maximum of 20 shifts / week.

In consideration of the subdivision of the activity products into the 'enrobed bakery confectionery products' and 'frozen desserts baked confectionery products' typologies; the maximum theoretical production capacity is calculated considering n. 4 production lines simultaneously for 20 shifts / week for 50 weeks / year.

The following table shows the data relating to the production capacity of the plant:

| Order No. | Product | Production capacity | | | |
|-----------|------------------|---------------------|----------------------|---|----------------------|
| | | Maximum capacity | | Actual capacity (1 September 2015 – 31 August 2016) | |
| | | t/y | t/d | t/y | t/d |
| 1 | Bakery products* | 112,000 | Min: 160 Max: 440 | 35,280 | Min: 160 Max: 350 |

Production mix, composed of:

- Kinder Pinguì (various flavours),
- Kinder Delice (various flavours),
- Fiesta (various flavours),
- Kinder Paradiso.

6.4 Act. 6.10 Preservation of wood and wood products with chemicals with a production capacity exceeding 75 m³ per day other than exclusively treating against sapstain

Case study no. 1

The installation is an existing installation that falls within the field of application of the discipline envisaged by Directive 2010/75/EU (IED), since it carries out activities referred to in point 6.10 and activities referred to in point 5.5 of Annex I of IED.

The operations can be divided into 2 main activities:

- processing of pine and larch poles impregnated with water-based antiseptic salts (CX-8), an activity that includes the IED installation relating to point 6.10;
- R13 operations, recovery and marketing of uninstalled wooden poles - activity 5.5.

The impregnation device can process 40 piles (about 5.2 m³) per cycle and can produce processed wood from class 1 to class 4. The duration of the processing cycle variate from 65 minutes (class 1) to 300 minutes (Class 4). Based on this data, the maximum capacity can be calculated as follows:

| | N (cycles/day) | Maximum capacity (m³/day) |
|---------|-----------------------|---|
| Class 1 | 21.8 | 113.5 |
| Class 4 | 4.8 | 25.0 |

As shown in the table, the operator is subject to IED as it can potentially work above the threshold if producing only Class 1 wood; this is the right assessment, even if the calculation according to class 4 put the company below IED threshold.

7. CONCLUSIONS AND RECOMMENDATIONS

This report can help operators and competent authorities in checking the eligibility of an installation to IED legislation and provisions right up to preparation of an application and submission. However, given the complexity and scale of some IED activities and in order to avoid possible delays caused by submitting an incomplete application, it is recommendable that the operators engage a pre-application clarification/consultation with the Competent Authority prior to submitting the application for an IED permit.

In any case, this document can be considered only a technical guidance and cannot be used in the context of legal proceedings. Final judgements concerning the interpretation of the Directive can only be made by the European Court of Justice.

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