



GUIDELINES FOR RESEARCHERS ON DUAL USE AND MISUSE OF RESEARCH

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Guidelines for researchers on dual use and misuse of research

Institutions and funding bodies aim at raising researchers' awareness on issues relating to dual-use and misuse of research and helping them to handle this appropriately. Researchers, indeed, have a legal and ethical obligation to prevent or mitigate, as much as possible, the risks and potential damage which may be caused by malicious use of their research results. Academic Freedom as guaranteed by article 13 of the Charter of Fundamental Rights of the European Union doesn't exclude that restrictions could be applied to certain transactions. The aim of export control is not to restrict research or censor its results but to prevent their misuse.

1. Responsibility

Handling research responsibly requires the active commitment from research institutions, funding bodies, and others. However, the researchers concerned also play a key role and must take their responsibility. The researcher is indeed best placed to assess the nature and seriousness of potential misuse relating to the intended knowledge, products or technologies and must, if the occasion arises, report this within the research institution and to the funding body.

In order to properly implement these guidelines, every research institution is required to establish an internal Dual-Use and/or Misuse Committee and provide adequate training to its researchers on the matter.

2. Definition of dual-use and misuse of research results

In the ethics self-assessment table within the framework of Horizon 2020, the European Commission distinguishes between two concepts: on the one hand, the concept of use for civil *versus* military purposes (described below as dual-use), and on the other hand the concept of good *versus* bad use (described below as misuse).

2.1. Dual-use of research

In Article 2 of Council Regulation (EC) No 428/2009 'dual-use items' are defined as *items, including software and technology, which can be used for both civil and military purposes, and shall include all goods which can be used for both non-explosive uses and assisting in any way in the manufacture of nuclear weapons or other nuclear explosive devices.*

European legislation on the **movement of dual-use items** ([EU Export Control Regulation No 428/2009](#)) requires that EU Member States take appropriate control measures to counter the undesirable and uncontrolled proliferation of dual-use items, software and knowledge, specified on the dual-use control list, to non-EU countries ([Annex I of EU Export Control Regulation No 428/2009](#)). This means that the transfer of such dual-use items to non-EU countries is **subject to authorisation from the Walloon or Brussels Government body in charge of arms licences and dual-use items**. In European legislation, dual-use items are defined as items which are primarily used for civil (academic or industrial) purposes, but can also be used for military purposes.

In accordance with Article 4 of Council Regulation (EC) No 428/2009 (the so-called **catch-all** control), an authorisation can also be required for items which do not feature on the dual-use list, if the country of destination is subject to an arms embargo and the items may be intended, in their entirety or in part, for a military end-use, or if the items may be intended, in their entirety or in part, for the production and proliferation of chemical, biological or nuclear weapons of mass destruction and their means of delivery (e.g. missiles capable of delivering such weapons). The EU dual-use regulation does not exempt research organisations from complying with the strategic trade controls.

Research organisations can be impacted by dual-use trade controls as “traditional exporters” and/or as “exporters of technology”.

“Traditional exporters” wish to export physical (or tangible) dual-use items such as (second hand) testing equipment, test samples or prototypes of composites or alloys, information security hardware or software, viruses, bacteria or toxins, semiconductor samples and radioactive reference materials. As “traditional exporters”, they do not differ from industry as the trade of these items outside of the customs territory of the European Union requires a customs declaration and subsequent clearance.

However, research organisations excel in producing research output in the form of publications, presentations, in attending conferences worldwide and in sharing (intermediate) research results in collaborative online platforms or the use of cloud computing. These types of research may trigger dual-use technology controls.

Many research disciplines are not affected by dual-use trade controls. Research disciplines within Science, Technology and Engineering are more likely to be affected than academic activities in the fields of Humanities, Social Sciences and Economics.

The **four pillars** of the control of the trade in dual-use items to non-EU countries (and for a limited number of highly sensitive items specified in Annex IV of the dual-use control list to another EU Member State) are:

- Technical items screening
- Operations screening
- Country of destination screening
- End use screening

a Technical item screening:

The first and most important step concerns the answer to the question whether the scientific output pertains to one of the 10 categories of the **dual-use control list** ([Annex I of EU Export Control Regulation No 428/2009](#)).

The list is broken down into 10 broad categories:

0. Nuclear materials, facilities and equipment
1. Special materials and related equipment
2. Materials processing
3. Electronics
4. Computers
5. Telecommunications and “information security”
6. Sensors and lasers
7. Navigation and avionics
8. Marine
9. Aerospace and propulsion

Each category is further broken down into **five groups**:

- A. Systems, equipment and components
- B. Test, inspection and production equipment
- C. Materials
- D. Software
- E. Technology (strategic knowledge)

Technology means specific information ‘required’ for the development, production or use of the goods specified in categories 0 through 9. This refers to only that part of “technology” which is peculiarly responsible for achieving or extending the controlled performance levels, characteristics or functions from the dual-use control list.

Research in e.g. metal alloys, composites, semi-conductor electronic devices, thermal imaging cameras, encryption and internet surveillance equipment, intrusion software, pathogens and toxins potentially pertains to listed (and therefore subject to authorisation) physical items (groups A, B, C), software (group D) or strategic knowledge (group E).

When the scientific output (e.g. materials, but also software or know-how) can be found on the dual-use control list, an authorisation will have to be applied for before exporting.

b Operation screening:

For this step, it shall be assessed if the movement falls under one of the transactions listed by the Regulation:

- **Export:** “‘export’ shall mean
 - an export procedure within the meaning of the Union Customs Code;
 - a re-export within the meaning of the Union Customs Code but not including items in transit;
 - transmission of software or technology by electronic media, including by fax, telephone, electronic mail or any other electronic means to a destination outside the European Community; it includes making available in an electronic form such software and technology to legal and natural persons and partnerships outside the Union. Export also applies to oral transmission of technology when the technology is described over the telephone”.

- **Transit:** “shall mean a transport of non-Union dual-use items entering and passing through the customs territory of the Union with a destination outside the Union”.

- **Brokering:** Brokering services “shall mean:
 - the negotiation or arrangement of transactions for the purchase, sale or supply of dual-use items from a third country to any other third country; or

- the selling or buying of dual-use items that are located in third countries for their transfer to another third country.

For the purposes of this Regulation the sole provision of ancillary services is excluded from this definition. Ancillary services are transportation, financial services, insurance or re-insurance, or general advertising or promotion”.

- **Technical assistance**“means any technical support related to repairs, development, manufacture, assembly, testing, maintenance, or any other technical service, and may take forms such as instruction, training, transmission of working knowledge or skills or consulting services”.

c **Country of destination screening:**

During this step, it must be examined whether the country of destination and the country of end-use are subject to sanctions. Some countries or entities are **more sensitivedestinations** (as intermediate stop and/or finaldestination) than others. That is why the export of certain items is prohibited and no authorisation can be acquired for these items. This list includes, amongst others:Afghanistan, China, Cuba, Iran, Ivory Coast, Libya, North Korea, Russia, Saudi Arabia, Sudan, Syria, South Sudan, Turkey, United Arab Emirates, Yemen, Zimbabwe. (Consolidated list of sanctions - restrictive measures in force:<https://www.sanctionsmap.eu/#/main>).

On the other hand, a **simplified registration**for export authorisations is in place:

- for certain countries and dual-use items, for instance for the export of most dual-use items to Australia, Canada, Japan, New Zealand, Norway, Switzerland, including Liechtenstein, and the United States; or
- for certain activities (export after repair or replacement, temporary export for exhibition or fair...).

In principle,movements of dual-use items within the European Union are not submitted to transfers authorisations except for a small list of items defined **byAnnex IV of EU Export ControlRegulation No 428/2009**as amended **and** some Members States might require a transfer authorisation for certain items.

d End-use and end-user screening

Finally, information must be provided through public sources about **who is the customer, what they do and what the items will be used for**. According to **Article 4 of Council Regulation (EC) No 428/2009** an authorisation is also required for items that are not registered on the dual-use list. This is called the catch-all control (or *ad hoc* authorisation requirement). This is the case if the country of destination is subject to an arms embargo¹ and the items may be intended, in their entirety or in part, for a military end-use, or if the items may be intended, in their entirety or in part, for the production and dissemination of chemical, biological or nuclear weapons of mass destruction and their means of delivery (e.g. missiles capable of delivering such weapons).

2.2. Misuse of research²

Complementary to the concept of dual-use items that focus on potential contribution to military activities, essentially CBRN related of certain goods and technology, the concept of “Misuse of research” has been introduced by the European Union in the framework of assessing projects eligible for its research funds.

It is to be understood as “research that could be misused for unethical purposes”. Some research can generate knowledge, materials, methods or technologies that could also be used in unethical ways. Although such research is carried out with benign intentions, people with bad intentions may potentially harm humans, animals or the environment with the acquired research results.

Although anything can potentially be misused for unethical purposes, this mainly includes research that could directly and without further developments be used by terrorists or criminals or technologies- which may have a direct substantial impact on the safety of individuals, groups or countries.

The research most vulnerable to misuse is research that:

- directly provides knowledge, materials, methods and technologies that could be channelled into crime or terrorism;

¹The arms embargo must have been decided by an action adopted by the Council or a decision of the Organisation for Security and Cooperation in Europe (OSCE) or a binding resolution of the UN Security Council. For a (non-official) overview of the countries subject to an arms embargo, please refer to: <https://www.sipri.org/databases/embargoes>.

²This paragraph on misuse is mostly a translation of the European Commission’s [Guidance note — Potential misuse of research](#).

- could result in chemical, biological, radiological or nuclear weapons and the means for their delivery;
- involves developing surveillance technologies that could curtail human rights and civil liberties;
- involves minority or vulnerable groups or develops social, behavioural or genetic profiling;
- technologies that could be misused to stigmatise, discriminate against, harass or intimidate people.

When designing a proposal, it is important to not only consider the immediate aims and intended applications, but also whether the research could serve unethical purposes.

The **four pillars** of the control as described above (point 2.1) have to be considered by the researcher. It shall take the form of a **risk assessment** for the intended research. The following questions could be asked in this context:

- What would happen if the research results ended up in the wrong hands?
- Could the research results (materials/ methods/technologies and knowledge) harm people, animals or the environment, if modified or enhanced?
- Could the research results serve any purposes other than the intended ones? If so, would that be unethical?

Complementary, he/she might have to propose **adjusted safety and security measures** to cover the safety risks (during and after the project period):

- taking additional security measures, e.g. physical security measures, classification of certain deliverables, compulsory security clearance for those involved in the project (if requested by the government, the government shall be responsible for this clearance);
- taking additional safety measures, e.g. compulsory safety training for research staff;
- adjusting the research design, e.g. using dummy data;
limiting the dissemination of research results, e.g. by publishing only part of the research results, regulating export, etc.

3. Exceptions to the authorisation requirement (decontrol)

3.1. Introductory remarks

The fact that no authorisation from the government body is required does not prevent the researchers from requesting advice to the University or research institute advisory structure or to the Walloon or Brussels authorities. The list of advisory structure and contacts persons are detailed at point 7 of the present guidelines.

3.2. Software

No authorisation is required for software (licences) which meets one of the descriptions from the dual-use control list, if the software is a commercial mass-market product which the buyer can start to use on the basis of the DIY principle. The minimum necessary “object code”³ for the installation, operation, maintenance (checking) or repair of those items whose export has been authorised shall be exempted from the authorisation requirement. This exemption does not apply to information security software which is subject to an authorisation requirement.

In concrete terms, the rules from the Regulation, stated in the general software note, are that an exemption applies to software which is:

- A. **“Generally available to the public”** by being:
1. Sold from stock at retail selling points, without restriction, by means of:
 - a. Over-the-counter transactions;
 - b. Mail order transactions;
 - c. Electronic transactions; or
 - d. Telephone call transactions; and
 2. Designed for installation by the user without further substantial support by the supplier.
- B. **“In the public domain”**: Software which has been made available without restrictions upon its further dissemination (copyright restrictions do not remove “software” from being “in the public domain”).

3.3. Transmission of knowledge (“technology”)

³ The object code is the code which is generated after the translation of a source code and is necessary to convert a set of object files into an operational software programme or library. For the precise definition, reference is made to the dual-use control list Council Regulation (EC) No 428/2009, as recast.

Possible exemptions from the transmission of technology, which is otherwise subject to authorisation, apply to “basic scientific research”, “in the public domain” and the minimum necessary information for patent applications as specified in the general technology note.

“Basic scientific research”: experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts, not primarily directed towards a specific practical aim or objective.

Whether the exemption for basic scientific research can apply may depend on several factors which are to be considered on a case-by-case basis.

Indicators which may play a role include:

- the research funding source (e.g. public grants or private sector funding),
- the research programme (e.g. ERC, Horizon 2020, FNRS, FRIA, Non FRIA, etc.),
- the regulation regarding the ownership of results (e.g. will the ownership be transferred to the financier, is shared ownership in place, does the research institute retain the ownership rights),
- the type of results expected (e.g. new knowledge or rather existing knowledge that is built on).

Other aspects of the relevant research may be important as well and they will necessitate an individual assessment for each separate case.

“In the public domain”: technology which has been made available without restrictions upon its further dissemination (copyright restrictions do not remove “technology” from being “in the public domain”).

Therefore, no authorisation is required if the research output is already in the public domain (through an open access publication, a scientific publishing company, a commercial bookshop or because the presentation through programmes (such as SlideShare.net®) is available without restrictions to a broad public, or because it shows from the funding, the consortium partners or the project description that it involves “basic scientific research”⁴).

Note to the interpretation of “knowledge in the public domain” within the framework of training initiatives, whereby the technology/knowledge in itself is subject to authorisation:

- No authorisation is required for merely transferring knowledge “from head to head” within the EU unless the knowledge institute provides information (slides, papers, course) about

⁴Please note: The publication itself of the research output may still be subject to the guidelines regarding the misuse of research (see point 2.2).

technology/ knowledge that is subject to authorisation, within its own premises, to non-EU participants;

- If the knowledge institute provides information (slides, papers, course) about technology/ knowledge that is subject to authorisation within its own premises, to its own collaborators within the EU, this is not regarded as an export, which is why no authorisation is required for that specific transaction;
- If, after completion of a training course, the knowledge institute transmits information about technology/knowledge which is subject to authorisation to non-EU participants, this is regarded as an export and requires an authorisation (slides, papers, course, USB, by e-mail, available on server via password);
- If the knowledge institute provides information (slides, papers, course) abroad (outside of EU) about technology/knowledge that is subject to authorisation, to anyone whatsoever, an authorisation is required.

Points of focus:

Research that is funded under **Horizon 2020** has an **exclusive focus on civil applications**. This does not exclude the participation of military partners or the development of generic technologies, products or knowledge.

In addition, a pilot project was already carried out within the **European Defence Agency** for the funding of **military research** in Europe and calls will be opened within the framework of the **EU's Preparatory Action on Defence Research**⁵(PADR)(period 2017-2019). As a result, attention is drawn not only to the dual-use control list, but also to the military control list. For items that are specially designed or modified **for military use** (production listed on the Common Military List of the European Union) it must be checked whether the regulation concerning the import, export, transit and transfer of defence-related products and other material for military use applies. For Wallonia, this regulation is set out in the **Decree of 21 June 2012**⁶and its implementing Decrees^{7,8}, which define the different types of licenses, their conditions to be granted, as well as cases when licenses can be suspended or withdrawn.

⁵<https://www.eda.europa.eu/what-we-do/activities/activities-search/preparatory-action-for-csdp-related-research>.

⁶ 21 JUIN 2012. - *Décret relatif à l'importation, à l'exportation, au transit et au transfert d'armes civiles et de produits liés à la défense* ; Moniteur belge, 5/07/2012, p. 36753. Available on: http://economie.wallonie.be/Licences_armes/News/DECRET%2021%20JUN%202012.pdf.

⁷ 23 MAI 2013. – *Arrêté du Gouvernement wallon portant exécution, en ce qui concerne les licences de transfert, du décret du 21 juin 2012 relatif à l'importation, à l'exportation, au transit et au transfert d'armes civiles et de produits liés à la défense*, Moniteur belge, 5/6/2013, p. 35551. Available on: http://www.ejustice.just.fgov.be/cgi_loi/loi_a.pl.

⁸ 23 MAI 2013. – *Arrêté du Gouvernement wallon portant exécution, en ce qui concerne les mesures prévues en matière de certification, du décret du 21 juin 2012 relatif à l'importation, à l'exportation, au transit et et au transfert d'armes civiles et de produits liés à la défense*. Moniteur belge, 05/06/2013. Available on:

For Brussels, the main legislative instruments are the **Order of 20 June 2013**⁹ and its implementing **Order of the Government of the Region of Brussels-Capital of 3 April 2014**¹⁰, which describe the application procedure, the different types of licenses, their conditions to be granted, as well as cases when licenses can be suspended or withdrawn.

3.4. Transmission of nuclear knowledge (“technology”)

Transmission of nuclear technology directly associated items listed in category 0 of Annex I of the Council Regulation 428/2009 as amended is, in principle, submitted to authorization. An export authorization for an item listed also authorizes the export to the same end-user of the minimum technology required for the installation, operation, maintenance and repair of the goods.

Possible exemptions from the transmission of nuclear technology which is otherwise subject to authorisation apply to “basic scientific research”, “in the public domain” in the same conditions as the one described above (see point 2.3.3).

4. Steps to be taken and/or obligations of Universities and Research Institutes

Each University or Research institute has to establish internal structure(s) to implement the guidelines obligations. It shall include:

- An advisory structure to help researchers to assess potential risks of their activities and to identify the necessity to apply or not for authorisations;
- A liability structure to identify who and how, they have to apply for an authorisation to Brussels or Walloon authorities;

http://www.ejustice.just.fgov.be/cgi/article_body.pl?language=fr&caller=summary&pub_date=13-06-05&numac=2013203259.

⁹ 20 juin 2013. - Arrêté du Gouvernement de la Région de Bruxelles-Capitale portant exécution de l'Ordonnance du 20 juin 2013 relative à l'importation, à l'exportation, au transit et au transfert de produits liés à la défense, d'autre matériel pouvant servir à un usage militaire, de matériel lié au maintien de l'ordre, d'armes à feu à usage civil, de leurs pièces, accessoires et munitions, Moniteur belge, 21/06/2013, p. 40076. Available on: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2013062003&table_name=loi.

¹⁰ 3 avril 2014. - Arrêté du Gouvernement de la Région de Bruxelles-Capitale portant exécution de l'Ordonnance du 20 juin 2013 relative à l'importation, à l'exportation, au transit et au transfert de produits liés à la défense, d'autre matériel pouvant servir à un usage militaire, de matériel lié au maintien de l'ordre, d'armes à feu à usage civil, de leurs pièces, accessoires et munitions, Moniteur belge, 17/07/2014, p. 54200. Available on: [http://www.ejustice.just.fgov.be/cgi_loi/loi_a1.pl?sql=\(text%20contains%20\(%27%27\)\)&language=fr&rech=1&tri=dd%20AS%20RANK&value=&table_name=loi&F=&cn=2014040356&caller=image_a1&fromtab=loi&la=F](http://www.ejustice.just.fgov.be/cgi_loi/loi_a1.pl?sql=(text%20contains%20(%27%27))&language=fr&rech=1&tri=dd%20AS%20RANK&value=&table_name=loi&F=&cn=2014040356&caller=image_a1&fromtab=loi&la=F).

- Appropriate internal security measures in order to prevent technologies which are subject to authorisation from leaving the European Union through the passage of temporary non-EU students, employees or researchers. E.g. entry of an export control clause in partnership agreements, design of a system for restricting access to sensitive information on network drives, development of a protocol on how sensitive information on data media is to be handled by users, etc¹¹.

5. Researchers obligations

Researchers have a **reporting obligation** to the proper internal channels within the institution in the context of the following types of transactions or applications:

- Export of dual-use items to non-EU Members States and in certain cases to EU Members States in any forms (including publications, conferences and others international scientific activity);
- Project applications for the EU or other agencies that require an Ethics Review, e.g. Horizon 2020, FNRS, Wallonia Region, internal funds;
- Project applications for funding by programmes of military authorities, e.g. US Department of Defence, AFOSR, etc.;
- Bilateral cooperation with companies that also produce military systems;
- Partnerships or dissemination activities that require an export authorisation.

¹¹ For more information on Internal Compliance Programmes, see point. 6. At page.

6. Examples and cases

6.1. How to determine whether a product is a dual-use item

To determine whether a product is a dual-use item, the technical specifications of the items must be verified against the descriptions in the list of dual-use items.

- ❖ Examples of **items on the dual-use list** ([Annex I of EU Export Control Regulation No 428/2009](#))
 - Materials, chemicals, microorganisms and toxins (structural, chemical, biological) - EU Dual Use List Category 1:
Aluminum, filamentary materials, graphite, zirconium, phosphorus compounds, human pathogens, zoonoses and toxins (Viruses: Dengue fever, Ebola, Variola (smallpox) - Rickettsiae: Coxiellaburnetti (Q fever) - Bacteria: Bacillus anthracis (anthrax), Yersinia pestis (plague) - Toxins: Botulinum toxins, Ricin, Cholera);
 - Materials processing – EU Dual Use List Category 2:
Filament winding machines, machine tools, isostatic presses, remote manipulators, furnaces, pressure transducers, chemical reaction vessels, heat exchangers, multi-walled piping, fermenters;
 - Electronics, sensors and lasers - EU Dual-Use List Categories 3 and 6:
Integrated circuits, A/D converters, capacitors, frequency changers, detonators, mass spectrometers, electronic cameras, lasers.

- ❖ Example of a conventional **dual-use item** (example copied from the *Handboekstrategischegoederenendiensten* in the Netherlands).

Image intensifier tubes are used both in military night-vision equipment and in security or (specific) television cameras. Depending on the design the tubes are designated as military items, dual-use items or items not subject to authorisation. Because the design and not the use is of decisive importance, it can happen that military tubes are being used for civil purposes and tubes falling within the scope of the dual-use list (and which will in reality be of lesser quality) being built into night-vision equipment for military personnel. In many cases this is not a problem, but sometimes it is not desirable that foreign armed forces receive equipment with Dutch dual-use components, e.g. armed forces of countries which are subject to an arms embargo. Through the export authorisation requirement foreign buyers can be compelled to only process the tubes in equipment for countries where the Netherlands would also grant an authorisation for direct supply.

- ❖ Example of a non-conventional **dual-use item** which is related to the development and production of weapons of mass destruction (WMD) (example copied from the *Handboek strategische goederenendiensten* in the Netherlands¹²). Certain flame retardants which are generally used in construction or the plastics industry can, when being combined or reacting with other chemicals, be used for the production of poison gases. The Netherlands do not object to the civil use of flame retardants. However, with the export authorisation requirement, the Ministry of Foreign Affairs wants to be assured that the flame retardants are used exclusively for the stated civil purpose. The more sensitive the country, the stricter the required guarantees. This ranges from a simple end-user declaration to agreements on inspections of the factory where the flame retardant concerned is being processed. If the Ministry of Foreign Affairs believes insufficient guarantees are given for the civil end-use, the export authorisation application will be refused.
- ❖ Examples of experiments with high misuse potential in **biology and biomedicine** include those that increase capacity:
 - to manipulate the pathogenicity, virulence, host-specificity, transmissibility, resistance to drugs, or ability to overcome host immunity to pathogens;
 - to synthesize pathogens and toxins without cultivation of microorganisms or using other natural sources;
 - to identify new mechanisms to disrupt the healthy functioning of humans, animals and plants; and
 - to develop new means of delivering biological agents and toxins.
- ❖ Examples in French of **items exported from the Walloon Regions and Brussels**:
 - **Catégorie 0 :**
 - Technologie nucléaire.
 - **Catégorie 1 :**
 - Fluorure de sodium – Précurseur agent chimique toxique – Traitement des eaux
 - Triéthanolamine – Précurseur d’agent chimique toxique – Cosmétique
 - Chlorure de thionyle – Précurseur d’agent chimique toxique – Recherche et enseignement
 - Graphite – MTCR – Balai pour moteur électrique
 - Huiles – Equipements militaires – Equipements civils
 - Fibres de verre – Nucléaire – Pales éoliennes
 - Sulfure de sodium – Précurseur agent chimique toxique – Industrie du cuir (tannerie).

¹²<https://www.rijksoverheid.nl/documenten/rapporten/2006/10/23/handboek-strategische-goederen>, consulted on 6 June 2017.

- **Catégorie 2 :**
 - Pompes centrifuges – Armes chimiques – Pétrochimie
 - Vannes – Armes chimiques – Pétrole et Gaz
 - Machines à commande numérique – Nucléaire – Pétrole et Gaz
- **Catégorie 3 :**
 - Transistors – Equipements militaires – Equipements civils
 - Oscilloscope - Equipements militaires – Baie de contrôle satellite
- **Catégorie 5 :**
 - Routeurs, modems avec cryptage - Equipements militaires – Transactions financières
 - Unités de stockage – Equipements militaires – Backup informatique
- **Catégorie 9 :**
 - UAV – Equipements militaires – Agriculture
 - Banc d’essai – Equipements militaires – Moteur pour hélicoptère civil
- Parmi les biens qui ne sont pas directement visés mais qui font l’objet d’une attention particulière pouvant aller jusqu’à une licence ou un refus :
 - Les UAVs dans leur globalité ;
 - Les appareils optiques à vision thermique ;
 - Les aciers ;
 - L’aluminium et le titane sous différents formes ;
 - Les isotopes radioactifs et le matériel médical en général ;
 - Domaine des satellites.
- Concernant le transfert de technologie :
 - Documentation de pompes primaires pour centrales nucléaires ;
 - Logiciel de cryptage.
 - Logiciel de simulation du bruit.

6.2. Scenarios of where export controls may come into place

a Cooperation with visiting foreign researchers

Conducting export controlled DU research at a university based in the EU

- No licence needed in principle (no deemed export);
- In some national cases, technical assistance licence required.

b Consulting, collaborating or working on export controlled DU research outside EU territory

- Yes if supplied from EU territory (physically or via laptop, cloud or media storage);
- No if it is the result of collaboration that occurred outside EU territory;
- In some national cases, technical assistance licence required.

c Presenting at a conference on EU territory on export controlled DU research

- No licence needed in principle (no deemed export);
- In some national cases, technical assistance licence required;
- Good practice to warn participants of licence requirements when exiting the EU territory with the controlled item(s).

d Presenting at a conference outside EU territory on export controlled DU research

- No if orally presented, even when recorded on the spot;
- No if accompanied by presentation or other conference material if the information is not meeting the controlled technology threshold(s);
- Yes, if accompanied by presentation or other conference material if the information is meeting the controlled technology threshold(s).

e Publishing export controlled DU research

- In general, publications do not meet the thresholds for containing export controlled DU technology;
- In general, export control authorities are not involved in the peer review process. However, consultations occur occasionally, on request of the research organisation or on request of the authority.

In exceptional cases, a (draft) publication (or raw data) that meets the thresholds for containing export controlled DU technology may be subject to export controls. This applies to the pre-publication phase (sending off a draft publication or raw data for review to an international journal, that in turn sends it off to external reviewers; or sending it off to a co-author) and to the actual publication phase, on the condition that the international journal, or reviewer(s), or co-author is established/resident outside the EU. This applies as well to Master or PhD thesis that meet the technology control thresholds.

f Patented information

- No, the export of patented information that is fully disclosed on the public record is considered to be in the public domain and hence exempted from export controls.

The nature of research funding impacts export controls, but proprietary contractual arrangements may trigger export controls even if the research funding aims to foster fundamental research.

Importantly, in the above scenarios it may not always be immediately clear what the licence requirements are. The main purpose of these scenarios is to highlight what academic activities may trigger export controls based on dealing with sensitive information.

6.3. Examples of required technology and technology in the public domain (BAFA guidance¹³)

a Example of knowledge in the public domains:

High performance computers are mentioned in the control lists and are frequently used for complex simulations in research. The knowledge of how to operate a high performance computer is not subject to export control. It is typically known and therefore already in the public domain. Cases in which a listed high performance computer is to be further developed or technically supervised by a foreign student in a computer centre may be subject to export control.

b Example of required technology

Unmanned Aerial Vehicles (drones) are listed in the control lists. The following characteristics and functions among others are important to fall within export control: autonomous flight control or controlled flight out of the direct natural vision of the operator, endurance and range. Technology may be covered if it relates to one of these features. This can be the case, for example, if autonomous flight control is developed or optimized for a drone. However, if the technology is designed to enable drones to communicate and interact with agricultural machinery, then it is usually not required technology. Consequently, this technology would not be covered by the control lists.

¹³ More information on the Federal Office of Economics and Export Control (BAFA) are available at https://www.bafa.de/EN/Foreign_Trade/Export_Control/export_control_node.html; the BAFA's guidance on Export Control in Research and Science is accessible and can be downloaded from the same website.

7. Universities and research institute advisory structure and contacts persons

Université de Liège (ULiège):

- Academic in charge: Professor Quentin MICHEL
- Administrative Officer in charge, Legal Affairs Department: Mrs Phuong NGO

Email address: dualuse@uliege.be

8. The role of Internal Compliance Programmes

On the basis of Commission Recommendation (EU) 2019/1318 of 30 July 2019 on internal compliance programmes for dual-use trade controls under Council Regulation (EC) No 428/2009, internal compliance measures help ensuring that trade of dual-use items is in line with the European and national interests and international obligations.

Seven core elements of risk assessment:

1. Top-level management commitment to compliance;
2. Organisation structure, responsibilities and resources;
3. Training and awareness raising;
4. Transaction screening process and procedures;
5. Performance review, audits, reporting and corrective actions;
6. Recordkeeping and documentation;
7. Physical and information security.

Recurring feedback on tailoring the core elements:

- Awareness and oversight of export controls and internal compliance measures are best accomplished at local level;
- The guidance best shows illustrations of possible set-ups on how compliance procedures could be structured at a university;
- Somebody at the local level acts as an export control administrator, designated to answer questions and oversee the implementation of compliance procedures within their department, research centre;

- Awareness and training about export controls in all research areas is not useful; focusing on specific areas (such as cyber-security) is more promising;
- Avoiding conflicts of interests is particularly challenging in a research context: researchers are interested in publishing and collaborating, but they are often the only ones that can do the classification of their research;
- Understanding “technology” and “required” are very challenging;
- A joint project (university-firm) can result in basic scientific research; it depends on the contractual arrangements;
- Suggest to include (protective) export control clauses in contracts;
- The tailored guidance should also focus on challenges related to (staff) mobility, technical assistance and who should apply for a licence in an international collaboration project;
- Restrictive measures can put additional authorisation requirements of prohibitions when it comes the distribution of knowledge to sanctioned destinations or entities;
- Satellite campuses in third countries create additional challenges when it comes to flow of technology and (staff) mobility.

9. Useful links

- <http://www.fdfa.be/csg>
- <http://ec.europa.eu/trade/import-and-export-rules/export-from-eu/dual-use-controls/>
- [EC Guidance note — Research involving dual-use items](#)
- [EC Guidance note — Potential misuse of research](#)
- [EC Guidance note — Research with an exclusive focus on civil applications](#)
- <https://www.sanctionsmap.eu/>

Web links to US regulations:

- EAR (Export Administration Regulations):
<https://www.bis.doc.gov/index.php/regulations/export-administration-regulations-ear>
- ITAR (International Traffic in Arms Regulations)
https://www.pmddtc.state.gov/regulations_laws/itar.html

- Office of Foreign Assets Controls: <https://www.treasury.gov/resource-center/sanctions/Pages/default.aspx>

Other useful links in French:

Texte du Règlement (CE) no 428/2009 (règlement double-usage) et d'autres informations sur ce texte (comme les modifications apportées au texte, la procédure d'approbation, etc.) :

<https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:32009R0428>.

Listes des **sanctions en vigueur**, établies par l'Union européenne (UE) et/ou les Conseil de Sécurité des Nations Unies (UN), par pays et par catégorie de produit(s) visé(s) :

<https://www.sanctionsmap.eu/#/main>.

Note d'orientation de la Commission européenne sur la **recherche concernant les biens à double usage**:http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/guide_research-dual-use_en.pdf.

Orientations du programme **Horizon 2020**: Comment remplir votre **auto-évaluation éthique**(liste de contrôle des questions d'éthique propres à la recherche sur les produits à double usage, à la page 33) :
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-self-assess_en.pdf.

Régime de contrôle du commerce des États-Unis (législation en vigueur, catégories de produits contrôlées, autorisations nécessaires, etc.) :

<https://www.bis.doc.gov>.

Politique de commerce de l'UE en matière produits à double-usage, DG Commerce de la Commission européenne (description du système de contrôle de commerce en place, types d'autorisations établies par le Règlement 428/2009 et documents liés) :

http://ec.europa.eu/trade/import-and-export-rules/export-from-eu/dual-use-controls/index_en.htm.

Liste des **autorités compétentes** de la mise en œuvre du Règlement 428/2009 par État membre :

http://trade.ec.europa.eu/doclib/docs/2016/august/tradoc_154880.pdf#page=27.

Sites web des **régimes internationaux de contrôle de commerce** (principes de contrôle et listes de produits contrôlés) :

- Wassenaar Arrangement –**WA** (produits militaires et à double-usage) : <http://www.wassenaar.org>.
- NuclearSuppliers'Group -**NSG** (produits nucléaires et à double-usage nucléaire) : <http://www.nuclearsuppliersgroup.org/en/>.
- Australia Group – **AG** (produits chimiques et biologiques et à double usage chimique/biologique) : <http://www.australiagroup.net/en/index.html>
- Missile Technology Control Regime - **MTCR** (produits militaires et à double-usage liés au développement, à la fabrication et à l'usage de missiles) : <http://mtcr.info>.

Liste de **mesures nationales** adoptées par chaque État membre de l'UE :

http://trade.ec.europa.eu/doclib/docs/2016/august/tradoc_154880.pdf.

