Reference:

P. Janik and T. Becker, *REACH and Space: Update from ESA*, 4th ESA REACH Workshop, ESA HQ Daumesnil, Paris, 18th October 2022

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REACH and Space: Update from ESA

P. Janik, ESA REACH Officer and MPTB Chair, European Space Agency

T. Becker, Senior Legal Advisor, REACHLaw

Outline

- REACH/related impacts on space activities
- REACH organisation – MPTB and Task Forces
- European Space Sector joint responses on REACH and related requirements
- Conclusions and outlook

(+references)

REACH / RELATED IMPACTS ON SPACE ACTIVITIES

EU REACH is the main driver for change

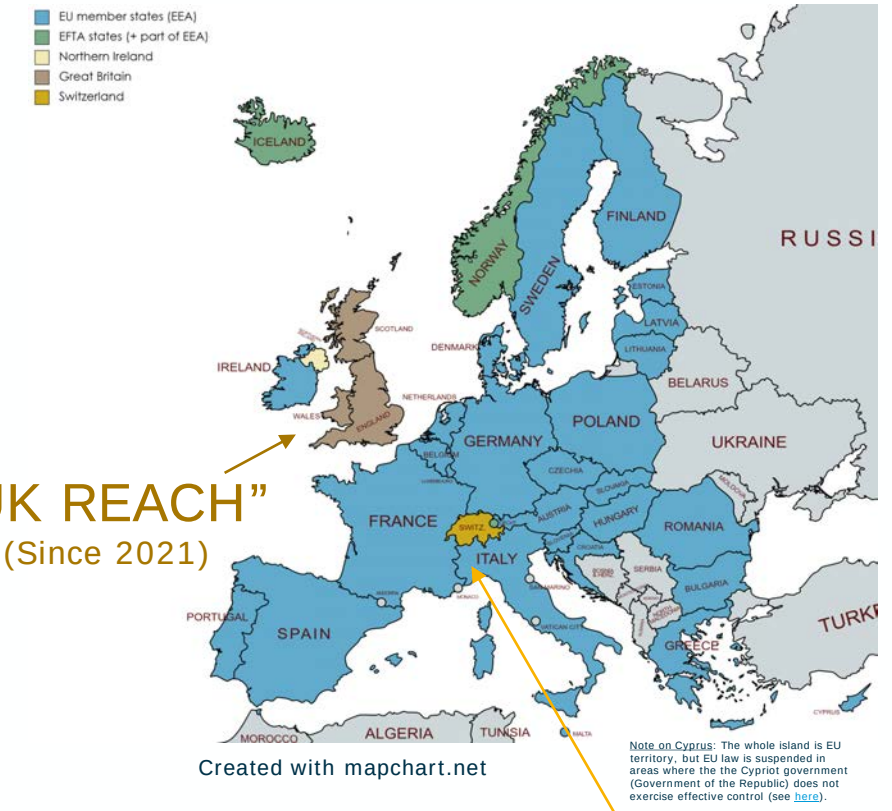
Registration, **E**valuation, **A**uthorisation and **R**estriction of **Ch**emicals*

- Addresses potential impacts of chemicals to human health and on the environment, production & use of chemical substances.
- Strictest law to date regulating chemical substances.

- ❑ Very desirable and ambitious regulation to contribute to a safer and healthier environment but
- ❑ **Many chemical substances facing regulatory or commercial obsolescence, causing widespread impacts to downstream users.**
- ❑ Causes wide-reaching engineering and management challenges for the space sector which is by nature driven by performance and applications' heritage

"EU REACH" territories

EU-27 + Iceland, Norway and Lichtenstein (= EEA) + Northern Ireland



"UK REACH"
(Since 2021)

Created with mapchart.net

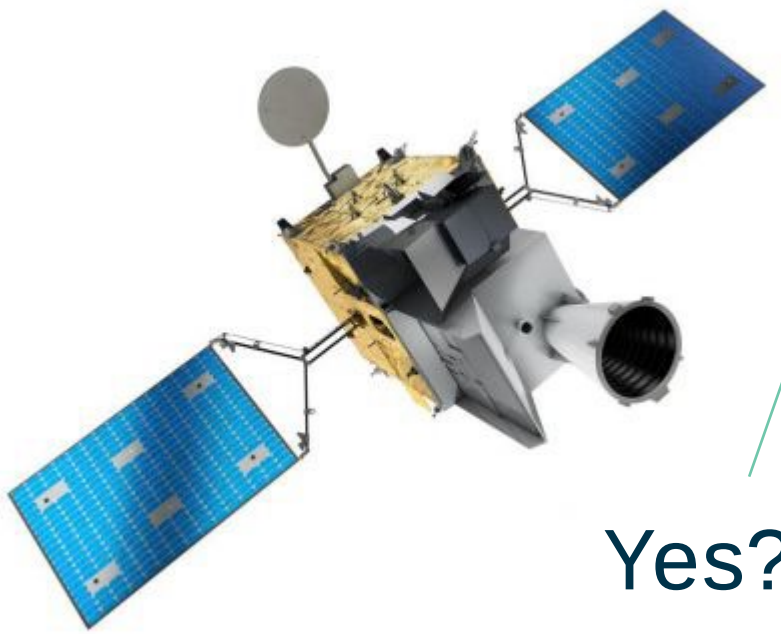
Swiss chemicals regulation

* Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Example of REACH-affected Manufacturing Processes

Are there any materials* with Candidate List SVHCs** c>0.1% w/w?

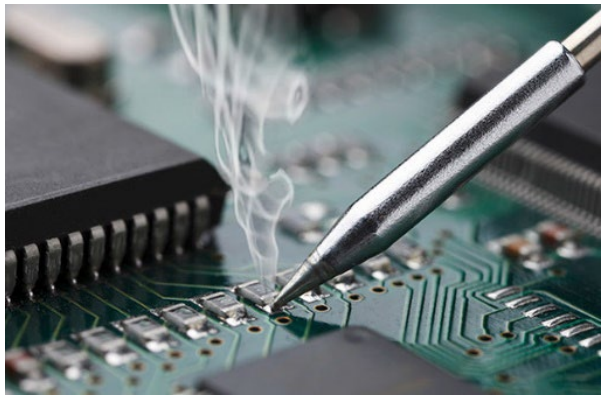
*"Articles" as defined in REACH Art. 3(3)



Yes?

Arbitrary examples (Art. 33 declaration & WFD/SCIP reporting):

- Solar arrays – Cr^{6+} based primers
- Pyro valves – phthalates
- PCDUs – B_2O_3 contained in insulators
- …
- Electronic units – lead in solders



*SVHC- Substance of Very High Concern

List of other regulations with impact (not exhaustive)

RoHS Directive(s), “RoHS 2” Directive 2011/65/EU: Restriction of hazardous substances in EEE

- Impacting space indirectly (COTS), as there is specific exemption for *equipment designed to be sent to space*

Carcinogens and Mutagens Directive “CMD” (2004/37/EC) and **Chemical Agents Directive “CAD”** (98/24/EC) on worker protection from risks related to exposure to substances found in the workplace

- Caused already significant obsolescence, especially in areas where organic solvents are used, including analytics! (Toluene, Xylene, Chloroform, etc… impacting adhesives, paints, coatings, surface treatments…)

Waste Framework Directive (WFD, revised Directive 2008/98/EC on waste), impacting space sector without any exemption so far, especially new obligation of **notification to SCIP database** (applies since 5 January 2021, cost effort, targets Candidate List SVHCs in articles → may result in obsolescence, companies may withdraw some articles), potentially conflict of laws (e.g. due to strict export restrictions/national differences on dual use goods)

UK REACH – consequence of Brexit (in force since January 2021)

- Impact for companies: Duplication of requirements, added burden for following another regime, possible source of obsolescence (divergence of EU REACH vs. UK REACH already happening)

Other relevant regulations (cont.)

Conflict minerals Regulation (EU) 2017/821, since January 2021(– tin, tantalum and tungsten, their ores, and gold), due diligence and reporting obligations for importers to EU, potential impact on effort → costs impacting final users (electronics)

Swiss chemicals regulation corresponding to EU REACH & CLP: **Chemicals Act, Chemicals Ordinance (ChemO)** and the **Chemical Risk Reduction Ordinance (ORRChem)**, similar scope as EU REACH.

New & future!

Ecodesign Directive 2009/125/EC, and its evolution to a Framework **Regulation on Ecodesign for Sustainable Products**: Space sector is mentioned in proposal text! New set of possible requirements e.g. on digital product passport (DPP), increasing number of requirements on additional data on materials and processes, establishes new term *Substance of Concern*, possible environmental footprint requirements etc.,… product-specific delegated acts are required – planned between 2024-2030

CSS REACH Revision (expected adoption and entry into force: 2025-2027): As response to EU's Green Deal and part of Chemicals Strategy for Sustainability (CSS): Significant impact on industry, introducing "Essential Use Concept", possibly simplified authorisation process, new reporting obligations, etc. – Commission proposal currently expected in Q1/2023

EU sanctions imposed on Russia, (latest 7th package, (EU) 2022/1269 of 21 July 2022 amending Regulation (EU) No 833/2014), restricting **import of steel, coal, oil and newly gold**, and **restricting export of wide range of chemicals, energetic materials, additives, dual goods in general…**

“Space” in EU chemicals/product/safety legislation*

*Important examples tracked only, not exhaustive!

Exclusion from the scope	In scope – no exemption/exclusion	Product-specific requirements
« Shall not apply to … equipment designed to be sent into space » ➢ **Batteries Directive** 2006/66/EC: *Batteries and accumulators* ➢ **RoHS** Directive 2011/65/EU & since 15 August 2018 **Waste EEE** Directive 2012/19/EU: *Electrical and Electronic Equipment (EEE)* ➢ **Mercury Regulation** (EU) 2017/852: *New mercury-added products*	➢ **REACH** Regulation (EC) No 1907/2006: *Chemicals* registration, evaluation, authorisation and restriction*;* Article 33 reporting for Candidate List substances above 0.1% w/w in *articles supplied in EU* ➢ **Revised Waste Framework Directive (WFD) 2008/98/EC***:* Reporting to ECHA **SCIP** Database for Candidate List substances above 0.1% w/w in *articles supplied in EU* ➢ **CLP, CMD, CAD, Conflict Minerals Regulation, etc.**	➢ **Proposal for a Regulation establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC (ESPR)** (COM(2022) 142 final), recital (16): - […] *“Similarly, the space industry is strategic for Europe and for its technological non-dependence. As space technologies operate in extreme conditions, any ecodesign requirements for space products should balance sustainability considerations with resilience and expected performance.”* […]

REACH ORGANISATION

MPTB AND TASK FORCES

MPTB – Definition and Role

Materials and Processes Technology Board *of the European Space Components Coordination (ESCC MPTB).* The ESCC MPTB is a partnership between the **European Space Agency** (ESA), **national space agencies**, and the European space industry represented by **ASD-EUROSPACE**; it is chaired at present by ESA. The European Defence Agency (EDA) is an observer.

- **Exchange of information** on Materials and Processes.
- **Prepare roadmaps and work plans** for R&D activities aiming to secure the use of existing or new materials and processes in future space programs
- **Reduce dependence on non-European supplies** and promote the use of European technologies
- **Improve awareness** of the legislative processes (e.g. REACH) and of its consequences in order to coordinate preventive and corrective actions covering all space applications
- Monitor the **stability of supply chains** and mitigate obsolescence risks
- Promote **synergy** with other research or industrial groups
- Promote the **optimisation** of available resources, e.g. in the areas of standardisation, qualification and testing.

We organise regular plenary meetings in order to exchange the information. The objectives are further divided into individual working groups.

REACH-related Regulatory Task Forces under the MPTB

ESCC MPTB*

REACH obsolescence risk analysis, incl. ESA REACH Tool. Regulatory monitoring. General studies and sector positions

**Materials and Processes Technology Board of the European Space Components Coordination (ESCC MPTB).* The ESCC MPTB is a partnership between the European Space Agency (ESA), national space agencies, and the European space industry represented by ASD-EUROSPACE; it is chaired at present by ESA. The European Defence Agency (EDA) is an observer.

initiates

report

Space Task Forces and Working Groups

REACH dossier development. Substitution roadmaps. Obsolescence management. Technical actions

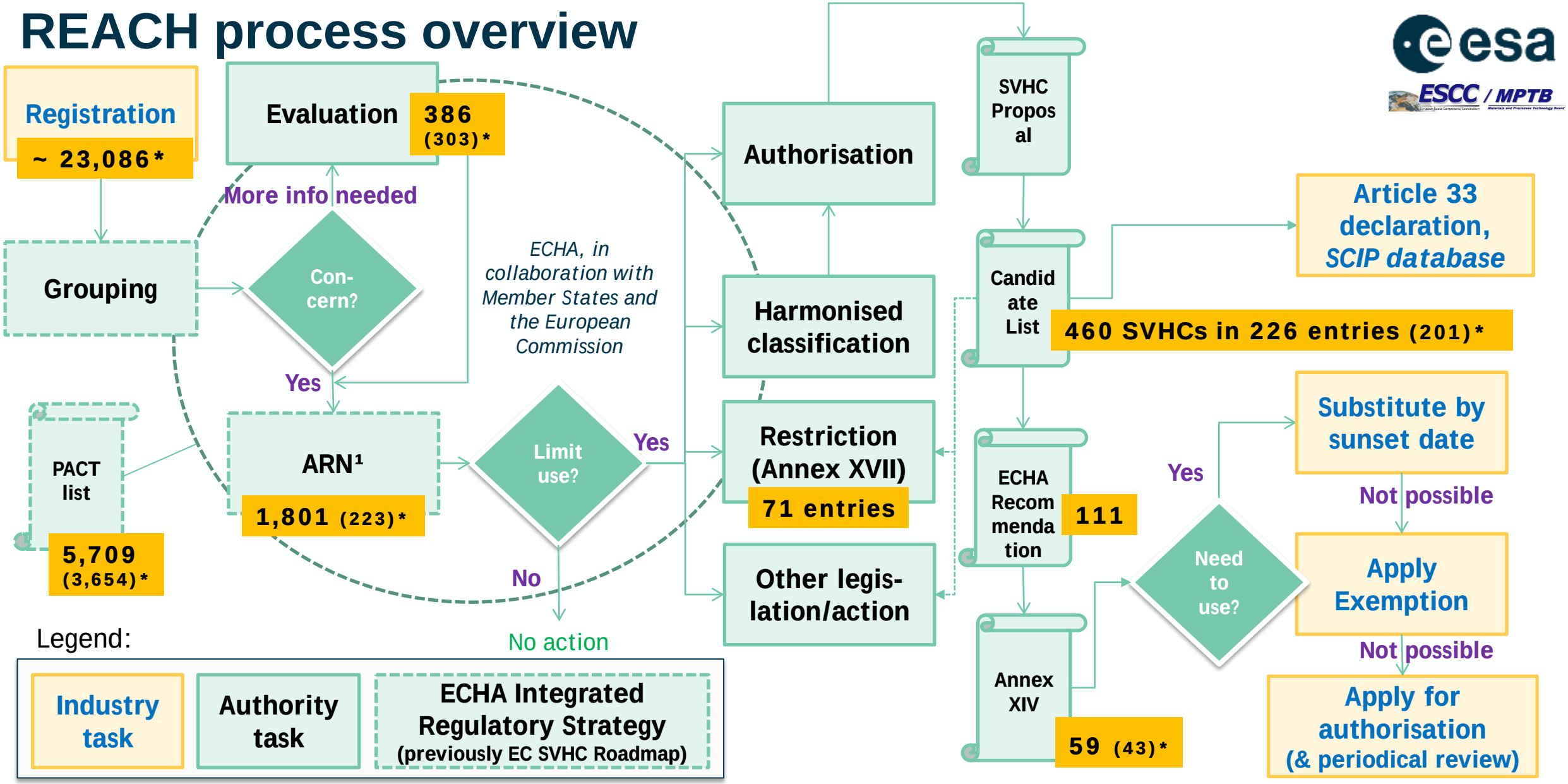
- Hydrazine Task Force "HTF"
- Energetic Materials "EMWG"
- Chromates Task Force "STF"
- Lead Metal Task Force "LTF"
- Lead-free Transition "LFT" WG
- WFD / SCIP Task Force
- CSS Space Focus Group "SFG"
- Obsolescence Splinter Group "OSG"
- ESMDB Steering Board
- Long Term Storage Splinter Group
- Materials Space Environmental Survivability WG

EUROPEAN SPACE SECTOR JOINT RESPONSES ON REACH AND RELATED REQUIREMENTS

Triggers for dedicated joint responses

- Substances considered / selected for REACH regulatory measures
- New legal requirements
- Legislation review / revision activities

REACH process overview

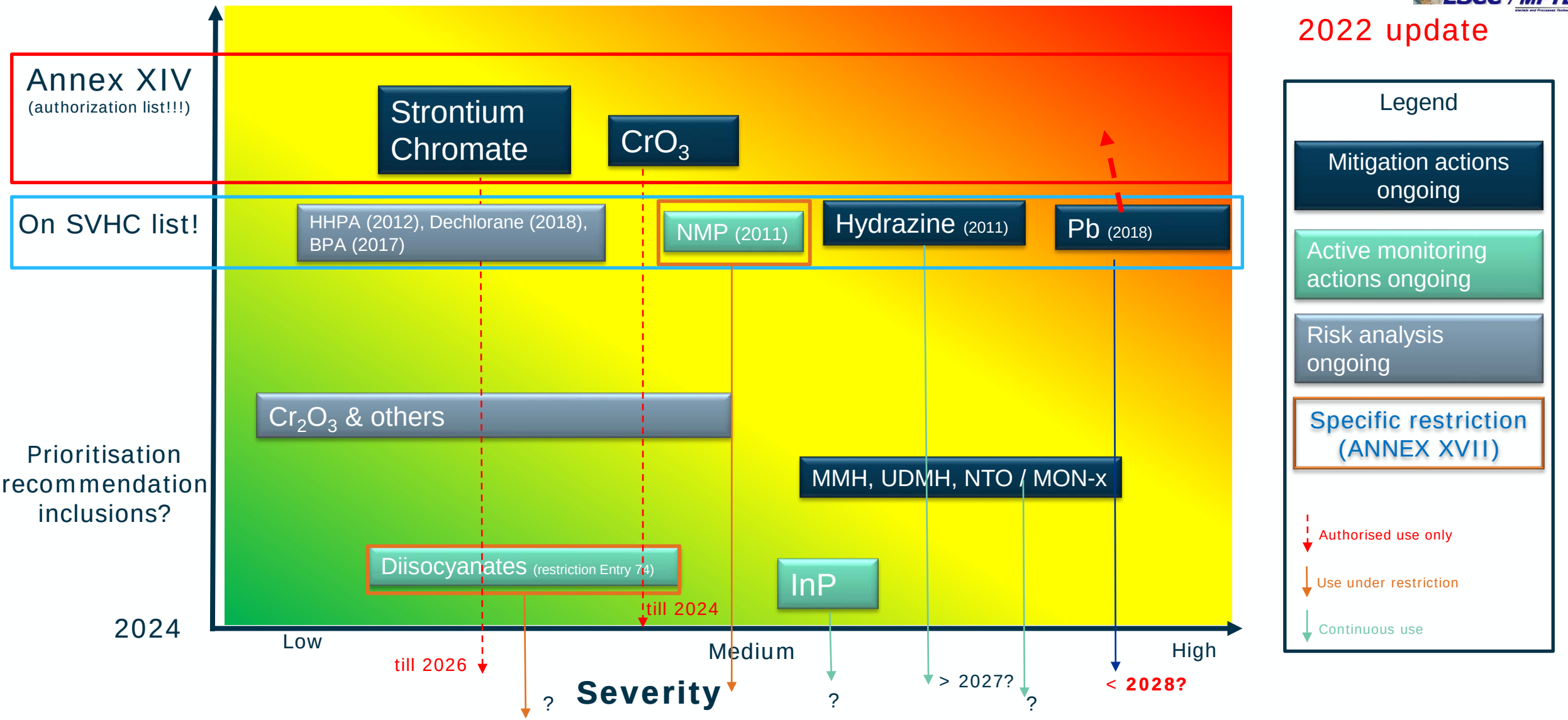


*Substance # as of 5.10.2022 (vs. # on 11.10.2019)

[1]ARN = Assessment of Regulatory Needs

Risk Assessment for Selected Substances

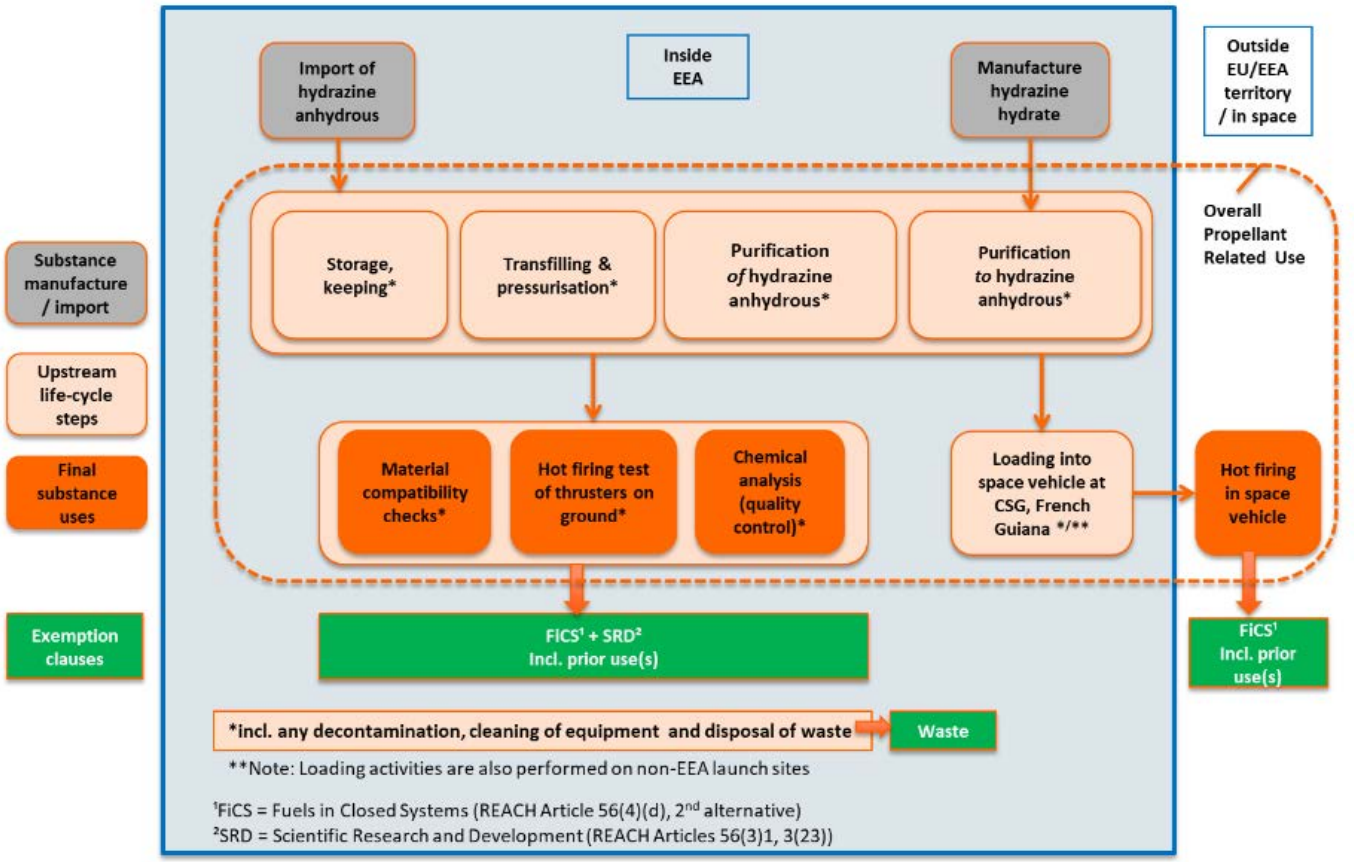
2022 update



Hydrazine Task Force (HTF), since 2011

- Triggered by inclusion of hydrazine in the REACH Candidate List of SVHCs for Authorisation in June 2011
- Hydrazine (anhydrous) is a strategic propellant for satellite and launcher programmes
- Dedicated study by HTF in 2011/12 concluded that there is a case for an exemption from authorisation
- Exemption Position presented to COM in October 2012 to obtain legal clarification (*still pending*)
- 2016: Parliamentary question & COM answer (link)
- OEL introduced with Directive (EU) 2017/2398
- In 2020 the exemption position was updated and extended to other liquid (bi-)propellants: MMH, NTO/MON-x), UDMH – update sent to COM*
- 2022: Recalled maintenance of the exemption under the CSS REACH Revision (Position Paper of 13.4.2022 to COM, p18, available here)
- Ongoing: Transfer of HTF activities to EMWG

Summary illustration of exemption position

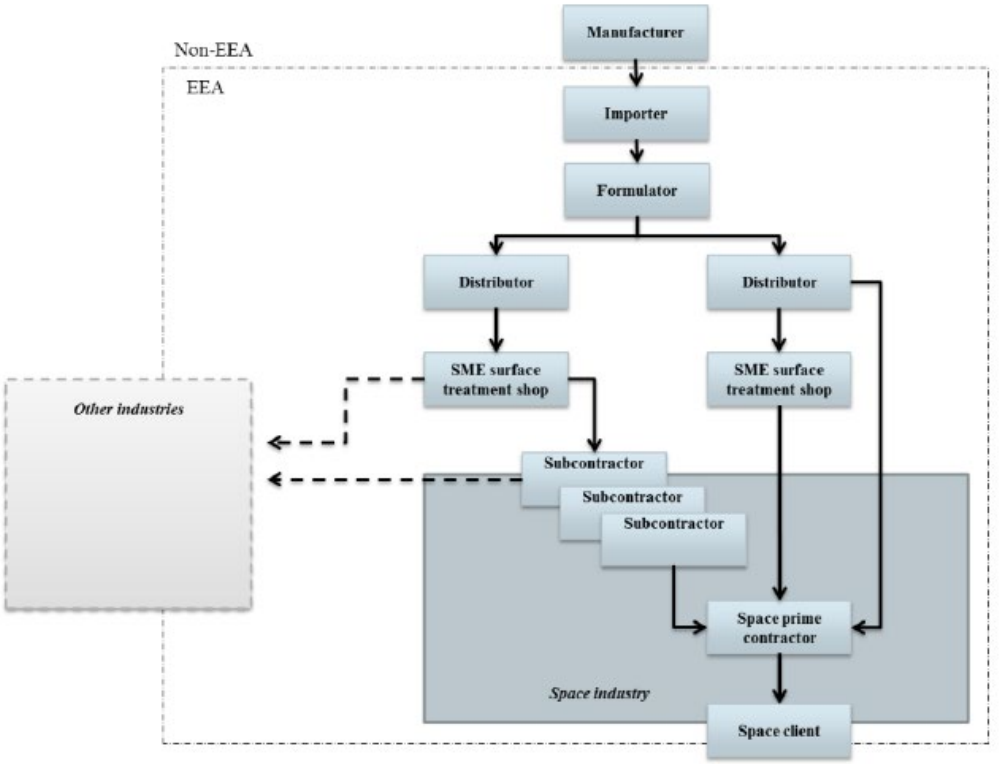


***Hydrazine Position Paper – Exemption from REACH authorisation (update, 8.4.2020), available here**

Space Chromates Task Force (STF), since 2013

- Triggered by Annex XIV inclusion of seven chromium compounds (incl. CrO3) in April 2013
- Use of CrO3 in chromic (or chemical) conversion coatings on aluminium alloy parts used in launchers and space vehicles was identified as very critical for many entities (+ other uses)
- Upstream authorisation (‘*CTACSub*’ for CrO3) was the only way given supply chain complexity
- 2015: STF supported the ‘CTACSub’ authorisation application during the decision-making process
- 2016: Parliamentary question & COM answer (link)
- 2020 (18.12.): Authorisation granted by COM (link)
- After granting of the authorisation: Focus to support REACH Art. 66 notification compliance by space DUs*
- 2022: Enforcement ongoing – first results expected soon
- Review report to ECHA due **by 21.3.2023** (‘*CTACSub2*’) – review period expires on **21.9.2024**
- *ADCR* (new) sector consortium – application timetable to be confirmed (see ADCR website)

A simplified overview of the flow of CrO3 in ‘space’ supply chain



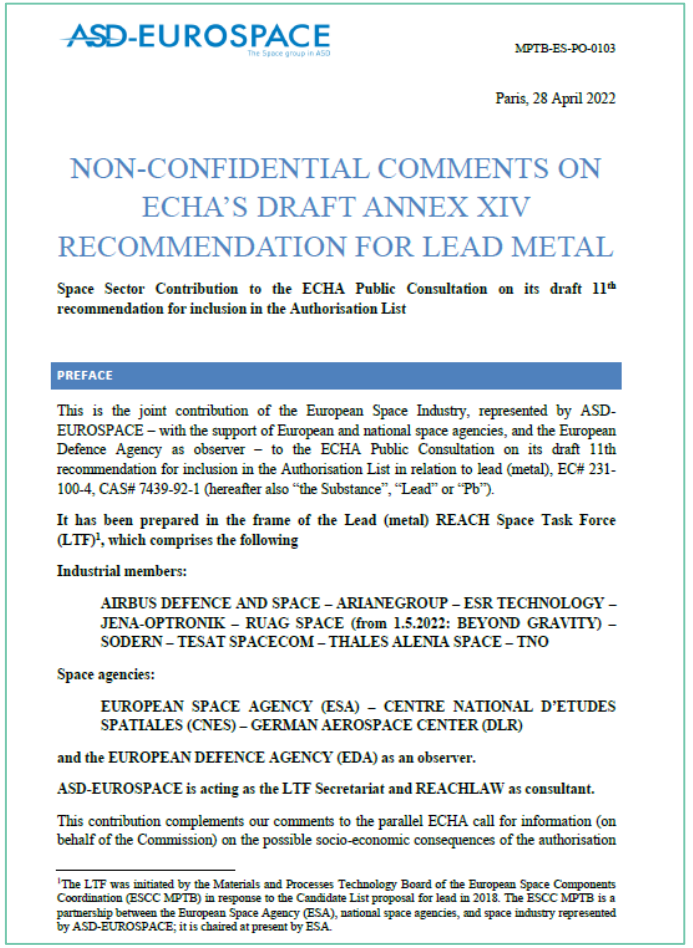
***REACH compliance guidelines for users of CrO3 in the European Space Sector to facilitate continued use under the REACH authorisation requirement (version of 18.11.2021), available here**

Lead (metal) Task Force (LTF), since 2018

- ECHA intention of 2.2.2022 to propose lead (CAS 7439-92-1) for inclusion in the REACH Authorisation List (Annex XIV)
- Lead is an essential element in a broad range of high reliability industrial applications requiring longevity in the European space industry, while no alternatives are known or space-qualified.
- Exclusion from RoHS for space equipment
- ESCC Roadmap for Lead-free Transition in the European Space Sector of April 2020 in place – joint funding applied from COM
- If included in Annex XIV, up to 200 or more applications are estimated for lead-based soldering only + complex supply chains affected
- Ongoing legal revisions (REACH, OSH, …)

Detailed comments dd. 28.4.2022 prepared for ECHA and COM call for removal of lead from the authorisation process, available here

Response to ECHA



ASD-EUROSPACE

MPTB-ES-PO-0103

Paris, 28 April 2022

NON-CONFIDENTIAL COMMENTS ON ECHA'S DRAFT ANNEX XIV RECOMMENDATION FOR LEAD METAL

Space Sector Contribution to the ECHA Public Consultation on its draft 11th recommendation for inclusion in the Authorisation List

PREFACE

This is the joint contribution of the European Space Industry, represented by ASD-EUROSPACE – with the support of European and national space agencies, and the European Defence Agency as observer – to the ECHA Public Consultation on its draft 11th recommendation for inclusion in the Authorisation List in relation to lead (metal), EC# 231-100-4, CAS# 7439-92-1 (hereafter also "the Substance", "Lead" or "Pb").

It has been prepared in the frame of the Lead (metal) REACH Space Task Force (LTF)[1], which comprises the following

Industrial members:

AIRBUS DEFENCE AND SPACE – ARIANEGROUP – ESR TECHNOLOGY – JENA-OPTRONIK – RUAG SPACE (from 1.5.2022: BEYOND GRAVITY) – SODERN – TESAT SPACECOM – THALES ALENIA SPACE – TNO

Space agencies:

EUROPEAN SPACE AGENCY (ESA) – CENTRE NATIONAL D'ETUDES SPATIALES (CNES) – GERMAN AEROSPACE CENTER (DLR)

and the EUROPEAN DEFENCE AGENCY (EDA) as an observer.

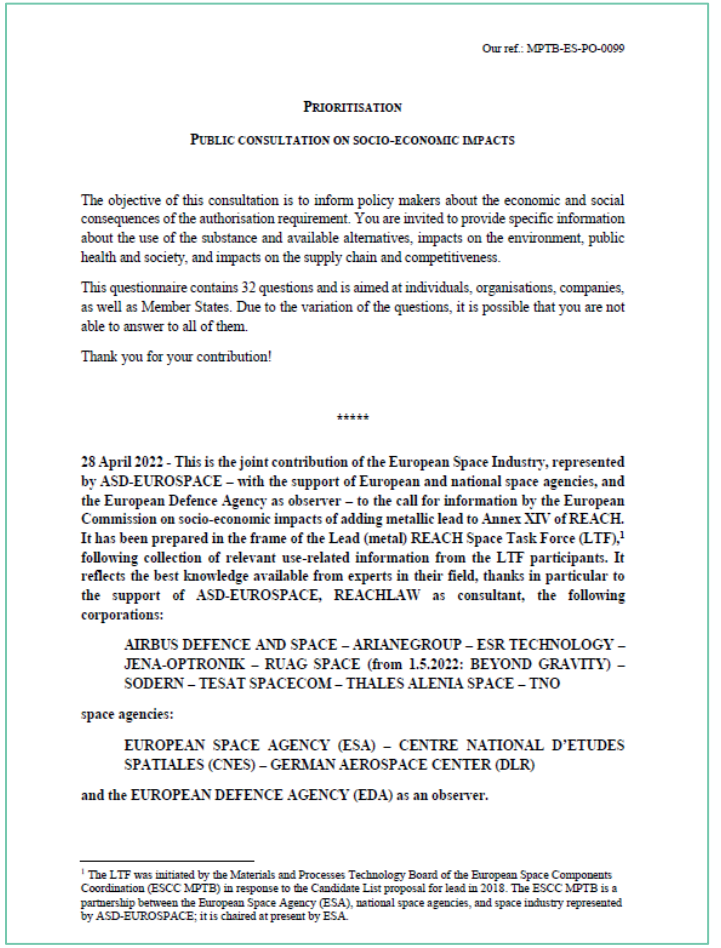
ASD-EUROSPACE is acting as the LTF Secretariat and REACHLAW as consultant.

This contribution complements our comments to the parallel ECHA call for information (on behalf of the Commission) on the possible socio-economic consequences of the authorisation

[1]The LTF was initiated by the Materials and Processes Technology Board of the European Space Components Coordination (ESCC MPTB) in response to the Candidate List proposal for lead in 2018. The ESCC MPTB is a partnership between the European Space Agency (ESA), national space agencies, and space industry represented by ASD-EUROSPACE; it is chaired at present by ESA.

Available at https://eurospace.org/download/3898/

Response to COM (*through ECHA*)



Our ref.: MPTB-ES-PO-0099

PRIORITISATION

PUBLIC CONSULTATION ON SOCIO-ECONOMIC IMPACTS

The objective of this consultation is to inform policy makers about the economic and social consequences of the authorisation requirement. You are invited to provide specific information about the use of the substance and available alternatives, impacts on the environment, public health and society, and impacts on the supply chain and competitiveness.

This questionnaire contains 32 questions and is aimed at individuals, organisations, companies, as well as Member States. Due to the variation of the questions, it is possible that you are not able to answer to all of them.

Thank you for your contribution!

*****

28 April 2022 - This is the joint contribution of the European Space Industry, represented by ASD-EUROSPACE – with the support of European and national space agencies, and the European Defence Agency as observer – to the call for information by the European Commission on socio-economic impacts of adding metallic lead to Annex XIV of REACH. It has been prepared in the frame of the Lead (metal) REACH Space Task Force (LTF),[1] following collection of relevant use-related information from the LTF participants. It reflects the best knowledge available from experts in their field, thanks in particular to the support of ASD-EUROSPACE, REACHLAW as consultant, the following corporations:

AIRBUS DEFENCE AND SPACE – ARIANEGROUP – ESR TECHNOLOGY – JENA-OPTRONIK – RUAG SPACE (from 1.5.2022: BEYOND GRAVITY) – SODERN – TESAT SPACECOM – THALES ALENIA SPACE – TNO

space agencies:

EUROPEAN SPACE AGENCY (ESA) – CENTRE NATIONAL D'ETUDES SPATIALES (CNES) – GERMAN AEROSPACE CENTER (DLR)

and the EUROPEAN DEFENCE AGENCY (EDA) as an observer.

[1] The LTF was initiated by the Materials and Processes Technology Board of the European Space Components Coordination (ESCC MPTB) in response to the Candidate List proposal for lead in 2018. The ESCC MPTB is a partnership between the European Space Agency (ESA), national space agencies, and space industry represented by ASD-EUROSPACE; it is chaired at present by ESA.

Available at https://eurospace.org/download/3902/

More on lead in Session II and III of this Workshop!

Energetic Materials WG (EMWG), since 2020*

- Objective: A joint broader regulatory monitoring and response framework to take the required actions to *determine* and *mitigate* possible *regulatory* obsolescence risks - mainly but not limited to EU REACH - for space propellants and explosives, especially due to the possible inclusion into the Candidate List, through messaging to regulators (especially ECHA and COM)

- 20+ participant entities from industry & agencies
- Interaction with ECHA on DBMC (antioxidizer in solid propellants of launchers) and some "Chemical Universe" assignations (to be corrected)
- Ongoing: Transfer of Hydrazine Task Force activities to EMWG - *to be completed shortly*

- Current scope: 55 substances, which are in use or investigated for future use as propellants/explosives - "living" list

Key examples of EMWG substances currently in use

Substance name	CAS No.	EC No.
Ammonium Perchlorate	7790-98-9	232-235-1
Dinitrogen Tetroxide "NTO"	10544-72-6	234-126-4
Hexogen "RDX" (Perhydro-1,3,5-trinitro-1,3,5-triazine)	121-82-4	204-500-1
Hydrazine	302-01-2	206-114-9
Hydrogen Peroxide @ 85% "H2O2"	7722-84-1	231-765-0
Lead azide	13424-46-9	236-542-1
Monomethyl Hydrazine "MMH"	60-34-4	200-471-4
Unsymmetrical DimethylHydrazine "UDMH"	57-14-7	200-316-0

***Eurospace creation notice: https://eurospace.org/new-space-sector-working-group-on-energetic-materials/**

NEW LEGAL REQUIREMENTS

WFD Space Task Force, since 2019

- SCIP notification and database requirements in Directive (EU) 2018/851 amending Directive 2008/98/EC on waste (WFD)
- Circular economy rationale for SCIP reporting to ECHA (information of waste treatment operators) does not apply to space products not resulting in waste to be treated
- However, no explicit exemption for space products nor recognized by COM and Member States
- Therefore, the Task Force elaborated a Best-Practice Guidance to comply with SCIP notification, suggesting a simplified approach for products not resulting in waste*
- Further detailed guidance with practical notification examples has been elaborated by **ASD**, incl. for space products

***WFD/SCIP Best-Practice Guidance for European Space Sector (2nd update of 19.9.2022), available here (together with references to the current ASD Guidance v1.1 of 14.4.2022)**

***Space Industry Guidance, 2nd update**

ASD-EUROSPACE
The Space group in ASD

MPTB-ES-GD-0110

Paris, 19 September 2022

BEST-PRACTICE GUIDANCE FOR THE EUROPEAN SPACE SECTOR TO COMPLY WITH *SCIP* NOTIFICATION

Recommendations for compliance with Article 9 (1) (i) of the revised Waste Framework Directive 2008/98/EC – as nationally transposed – for EU suppliers of equipment designed to be sent into space and related means of transport which do not result in waste for treatment on Earth/in EU

The *Waste Framework Directive Task Force of the European Space Sector addressing Substances of (Very High) Concern in Products "SCIP"*[1] *(WFD/SCIP Task Force)* – represented by *ASD-EUROSPACE* – collaborating with European and national space agencies – wishes to share this Best-Practice Guidance to facilitate legal compliance with the SCIP notification requirement pursuant to Article 9(1)(i) of Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (hereafter also referred to as the revised Waste Framework Directive/WFD) – as nationally transposed.

The WFD/SCIP Task Force is a splinter group of the *Materials and Processes Technology Board of the European Space Components Coordination (ESCC MPTB)*. The MPTB is a partnership between the *European Space Agency (ESA)*, national space agencies, and space industry represented by ASD-Eurospace; it is chaired at present by ESA.

PREFACE

ADDRESSEES OF THE GUIDANCE

This Guidance is primarily addressed to EU suppliers of equipment designed to be sent into space and related means of transport (spacecraft, such as satellites for telecommunication, navigation, earth observation or space exploration and launch vehicles) which do not result in "waste" for treatment on Earth / in EU (hereafter "**Space Products**"). Space Products are highly complex assemblies, that may consist of millions of articles. The corresponding supply chains leading to their production are complex, multi-tier and global. The space industry operates with demanding qualification requirements and very long lifecycles from design and production to exploitation phases (long-length programmes).[2]

LEGISLATION REVIEW / REVISION ACTIVITIES

Evolution of Chemicals Regulatory Requirements*

*Important examples only, not exhaustive

RoHS Directive(s) (2003-)
Restriction of hazardous substances in electrical and electronic equipment

RoHS Review ongoing

REACH Regulation (2007-)
Registration, Evaluation, Authorisation & Restrictions of chemicals

REACH Revision ongoing

CLP Regulation (2008-)
Classification, labelling and packaging of substances and mixtures

CLP Revision ongoing

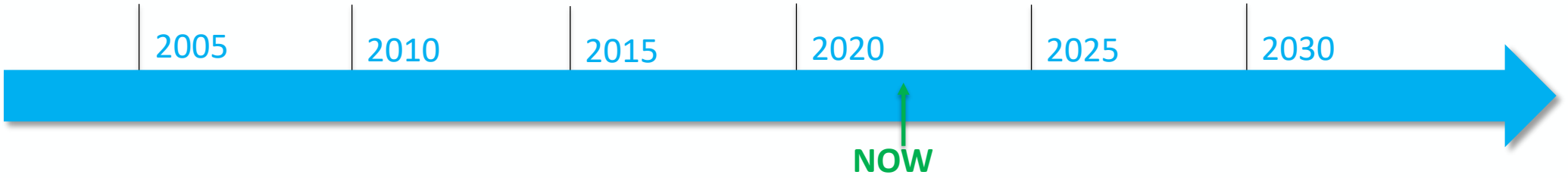
Revised Waste Framework Directive (2018-)
incl. SCIP reporting on SVHCs in articles above 0.1% w/w to ECHA

Sustainable Products Initiative (2021-)
incl. ecodesign requirements and EU Digital Product Passport

Key EU policy drivers

- European Green Deal
- Circular Economy Action Plan
- Chemicals Strategy for Sustainability (CSS)

+ outside EU/globally: New similar requirements, often taking EU laws as example (e.g. RoHS, UN GHS, Swiss chemicals law, UK REACH)



CSS Space Focus Group (SFG), since 2021

SFG objective to follow the European Commission activities on CSS implementation with regard to the planned revision activities, and to prepare and inject contributions in support of Space Sector interests

- CSS REACH Revision (incl. Essential Use Concept) – Position Paper (13 April 2022), available here
- Participation in workshops and interviews (→ on Essential Use Concept) for COM impact assessment
- Feedback on Sustainable Products Initiative (SPI) and COM proposal of 30.3.2022 for Ecodesign for Sustainable Products Regulation (20 June 2022), available here
- Further specific contributions sent to COM on Essential Use Concept and interface REACH / OSH
- In addition: Dedicated support to a number of **ASD** contributions to the REACH Revision and RoHS Review
- Next: Monitoring and possible input to future calls

More in Session II "REACH Revision activities, other regulatory challenges & key messages" of this Workshop!

CONCLUSIONS AND OUTLOOK

Conclusions

- Increasing number of regulatory constraints in Europe lead to significant number of obsolescence cases in M&P domain impacting space industry (more to come),
- Proactive M&P obsolescence management is key element for successful businesses, regulatory monitoring is one of its essential elements,
- Collaboration & communication on regulatory issues within the Space Sector and beyond (aerospace & defence, automotive, electronics, etc.) is critical
- More information about Space Sector activities on REACH and related: https://eurospace.org/working-groups/#reach

Thank you for your attention!

Questions?

Contact: reach.officer@esa.int
For the contractor: tim.becker@reachlaw.fi

Important references and links

EUROSPACE, trade association of the European Space Industry: https://eurospace.org/

HEISKANEN P. et al., Regulatory and Commercial Obsolescence Risks of Materials and Processes (International Chemical Regulatory and Law Review, Volume 3 (2020), Issue 1): https://doi.org/10.21552/icrl/2020/1/4

MATREX, CNES space materials and regulatory risk tracking database: https://matrex.cnes.fr

MAPTIS, Materials And Processes Technical Information System of NASA: https://maptis.nasa.gov/

REACH-Related:

ECHA list of Annex XIV substances (authorisation list): https://echa.europa.eu/authorisation-list

ECHA list of Annex VXII restrictions (restriction list): https://echa.europa.eu/substances-restricted-under-reach

ECHA's SVHC list (Candidate list for Annex XIV): https://echa.europa.eu/candidate-list-table

ECHA SCIP database: https://echa.europa.eu/scip-database

REACH & Obsolescence management relevant ECSS (https://ecss.nl/)

- ECSS-Q-ST-70C rev2 - Materials, mechanical parts and processes
- ECSS-Q-HB-70-23A – Materials, mechanical parts and processes obsolescence management HB

Databases M&P & EEE component relevant info:

- ESA REACH Tool: https://reachtool.esa.int (relevant for MPTB/OSG members)
- MODESA, outgassing database: https://modesa.esa.int/
- ESCIES: European Space Component Information Exchange System: https://escies.org/

REACHLAW
COMPLIANCE. SUSTAINABILITY.

ABOUT US

We Specialize in Chemical Regulatory Compliance and Sustainability

- Contractor to ESA since 2011
- Established in Helsinki, Finland 2006
- Offices in Espoo (head office), Brussels, Manchester, Istanbul and New Delhi
- Multidisciplinary team - Business, Legal & Technical: *Eco-/Toxicologists, Chemists, Socio-econ. analysts and Environmental specialists*
- Support in 10+ different languages
- Major industries served: *Oil, Chemicals, Specialty Chemicals, Metals, Aerospace and Defence sector, Electronics, Pulp & Paper and Other downstream users (DU) industries, etc..*
- More info at: www.reachlaw.fi

Regulations Supported:

- *EU REACH & CLP & WFD/SCIP*
- *UK REACH & CLP*
- *Turkey KKDIK & SEA & GBF*
- *India REACH**
- *Korea REACH*
- *Swiss ChemO*
- *China "REACH" & GHS*

...and more

* *Upon Entry Into Force*