

SUSTAINABLE SOLUTIONS

2021

YEAR-END
REPORT



IAEG[®]
INTERNATIONAL AEROSPACE
ENVIRONMENTAL GROUP



The world as we know it today is changing rapidly. The decarbonization and digitalization of our sector may induce deep changes to our production methods, in our habits and in our mobility in the future.

Many member companies are investing to reduce the environmental impact of industry activities and of products throughout their life cycle. We therefore believe, more than ever, in a sustainable aviation and space industry that is both clean and carbon-neutral.

The COVID-19 crisis has severely limited our activity. However, due to the regular and active participation of each of its members, IAEG has now become the essential forum for sharing good practices and developing tools and guidance for voluntary consideration and use. IAEG's work remains key to support this ecological

and societal transition. IAEG was initially focused solely on the environment, but with the agreed scope extension to environment, social and governance (ESG) matters this year, we will ensure greater effectiveness in addressing these topics throughout the supply chain. The commencement of a new working group dedicated to risk assessment and ESG engagement of suppliers in the sector appears also to be a new key step in our journey towards sustainability.

Nothing that has been achieved this year could have been accomplished without the outstanding mobilization of our various

members. We thank you for your continued support and for your participation in the Working Groups. We must also thank the members of the Strategic Planning Committee, the Executive Committee and the Board. Special recognition must go to Sally Gestautas, our former Chair, for what she has achieved for IAEG. Thank you. But above all, a huge thank you to Christer Hellstrand, our Program Director, for his relentless involvement and supervision of our operations.

Today we are counting on you, even more than before, to be pioneers of sustainable aviation for a safe and united world.



A stylized, handwritten signature in blue ink, appearing to be 'B. Costes'.

Dr. Bruno COSTES | BOARD CHAIR | IAEG

Materials and Substances Declaration



Replacement Technologies



Greenhouse Gas Management and Reporting



EU REACH Authorisation



ISO 14001 and Environmental Management System Implementation



Emerging Regulations





Materials and Substances Declaration

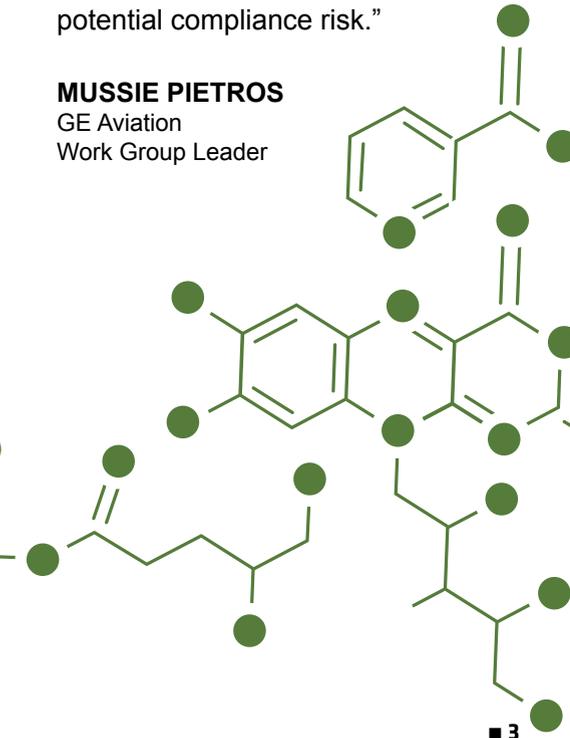
WG1

- ✓ Industry experts collaborate to determine relevant data elements (IPC 1754)
- ✓ Maintenance of Aerospace and Defense Declarable Substance List (AD-DSL), incorporating the latest regulatory updates



“WG1 remains committed to supporting Aerospace and Defense (AD) companies in dealing with this increasing number of substances of concern in products and related data gathering efforts, which are becoming far more complex in the face of proliferating declaration data elements growth. WG1 proactively participates in industry standards while providing compatible tools to enable AD companies to conduct their substances-in-products declaration campaign process with their respective global supply chain population to identify substance dependencies and manage their potential compliance risk.”

MUSSIE PIETROS
GE Aviation
Work Group Leader



2021 Accomplishments

- Published [Aerospace and Defence Declarable Substance List \(AD-DSL\) v4.1](#)
- Published [Aerospace and Defence Declarable Substance List \(AD-DSL\) v5.0](#)
- Published [Aerospace and Defense Substance Reporting Tool \(AD-SRT\) v1.2.1](#)
- Completed Materials and Substances Declaration Contract Terms v1.0
- Completed Materials and Substances Declaration Process Considerations v1.0
- Published [Declaration Development Support Document v2.0](#)
- Conducted webinar to promote [“Declaration Development Support Document”](#)

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2022 Goals

- Publish Aerospace and Defence Declarable Substance List (AD-DSL) v6.0
- Publish Aerospace and Defense Substance Reporting Tool (AD-SRT) v2.0
- Release Internal Materials and Substances Declaration Contract Terms
- Publish Materials and Substances Declaration Process Considerations
- Complete and release Declaration Development Support Document v3.0
- Support publication of updated IPC-1754 Supplier Declaration Guidance document
- Conduct webinar to socialize “WG-1 & Work Products Connectivity”

Replacement Technologies

WG2

- ✓ Collaboration by industry experts to jointly develop qualified material substitutions
- ✓ Cost sharing and common industry solutions developed for voluntary unilateral consideration and use

2021 Accomplishments

- The Bond Primer Project has launched its second phase. They have updated their report from the first phase of the project to include new project participant's data.
- The Anodize Seal Project completed all work packages defined in the project statement of work and summarized all in a final report, issued to project participants on 21 April 2021. They proposed changes to SAE AMS2471; proposed changes were accepted by the SAE Aerospace Material Specification (AMS) Finishes, Processes and Fluids committee.
- The Cadmium Plating Project has agreed to a test matrix for testing of electrical connectors with alternative coatings to cadmium and procured samples for assessment within the test programme. Preparation of the test programme started before the end of 2021.
- The Chemical Conversion Coatings (CCC) Project has evaluated four commercially available non-chromated coating solutions through Neutral Salt Fog (NSF) corrosion; Electrical Contact Resistance (ECR), and wet paint adhesion performance testing. Performance test results have been shared between the CCC Project group participants.
- The Fuel Tank Coatings Project has now launched. They have started to review the performance requirements of a fuel tank coating in project participants' material specifications and industry standards.

2022 Goals

- The Bond Primer Project will complete testing and summarise the results in a technical report.
- The Cadmium Plating Project will complete electrical connector testing and summarise the results in a technical report.
- The Chemical Conversion Coatings Project will carry out more testing in accordance with the needs of the project participants.
- The Fuel Tank Coatings Project will determine the key requirements of fuel tank coatings, share test data on any REACH compliant candidate fuel tank coatings that have been tested with the project team and engage with coatings manufacturers and suppliers to learn of any developments in fuel tank coating materials.

“ IAEG continues to provide a platform for collaborative projects within the Aerospace and Defence industry to help our products become REACH compliant. WG2 has continued to run projects where knowledge can be shared and gaps can be identified to help understand what needs to be done to move the industry away from restricted chemicals. It is also great that we have been able to launch our new Fuel Tank Coating project this year which shows the continued commitment of Original Equipment Manufacturers (OEMs) to WG2.”

LAURA WILKINSON
Rolls-Royce
Work Group Leader





Greenhouse Gas Management and Reporting WG3

- ✓ Efficient GHG Scope 1, 2 & 3 reporting, supports industry credibility
- ✓ Support industry wide collaboration on good practice sharing

2021 Accomplishments

- Beta testing of Scope 3 Purchased Goods & Services and Capital Goods calculation methodology and tool completed.
- IAEG Board approval and subsequent publication of the Scope 3 Purchased Goods and Services and Capital Goods calculation methodology and tool on [IAEG.com](https://www.iaeg.com)

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2022 Goals

- A planned review and impact analysis of new norms and regulations related to GHG emissions declarations.
- The release of guidelines for GHG emissions reporting related to Scope 3 Use of Sold Products, for commercial applications.

“As shown in the Conference of Parties (COP) 26 conference on climate change, the reduction of greenhouse gas (GHG) emissions is higher than ever on national and international public bodies’ agendas. Our aerospace sector is under the spotlights to demonstrate how it will master its transition to decarbonized operations. In this context, IAEG WG3 has already produced guidelines for clear and harmonized declarations of GHG emissions by the companies involved in the aerospace industry. We will continue to support them by rolling out our best practises throughout the value chain, and will extend our guidelines to new topics called by the Greenhouse Gas Protocol and other forthcoming norms and regulations.”

BRUNO DARBOUX
Airbus
Work Group Leader



EU REACH Authorisation

WG5

- ✓ Industry collaboration to determine material obsolescence risks due to EU REACH regulations
- ✓ Input to formation of cost-sharing A&D consortia for creation of applications for authorisation

2021 Accomplishments

- Detailed mapping completed of lead (Pb) compounds from the 7th and 9th recommendation Substances of Very High Concern (SVHCs) for inclusion in Annex XIV (Substances Subject to Authorisation).
- Preliminary mapping completed for 10th recommendation SVHCs for inclusion in Annex XIV.
- Additional mapping of Dechlorane Plus™ completed.
- WG5 SVHC Matrix revised which includes Annex XIV proposals, new additions to Annex XIV and information on any authorisations applied for or granted relevant to aerospace applications.
- WG5 received approval to expand its scope to include assessment of Annex XVII substances (Restricted Substances) where they may have similar impacts to business continuity as Annex XIV substances.

2022 Goals

- Develop additional supply chain mapping reports based on established priorities, including: 10th recommendation SVHCs, anticipated 11th recommendation SVHCs as well as engagement where appropriate with 7th & 9th recommendation lead (Pb) compound formulators.
- Define and incorporate the expanded scope, now including Annex XVII substances, for EU and UK REACH into WG5 activities.



The collaboration between members and the expert analysis of anonymised member data by the external consultants allows member companies to get a realistic idea of how a substance restriction will impact their businesses. In this respect, WG5 participation repeatedly pays dividends in excess of members' contributions, and the resulting output is a tangible message that can be taken and communicated to a member's company. The value of this is evident; long time members continue to participate year on year, and new members are regularly attracted."

JOSEPH MCCARTHY

Leonardo
Deputy Work Group Leader



ISO 14001 and Environmental Management System Implementation

WG7

- ✓ Provide sectorial guidance on ISO 14001 Implementation
- ✓ Risk-based Maturity Framework developed for implementation of a suitable EMS for small and medium sized companies, based on ISO 14001



2021 Accomplishments

TOOLS AND RESOURCES:

- Published EMS Maturity Framework awareness video
- Translated Resources and Examples into French, Portuguese, German and Spanish
- Board approved verification tool kit
- Developed 'Environmental Management System Implementation – At a Glance'
- Piloted EMS maturity master list and process

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2022 Goals

- Refresh website
- Translate tool kits, EMS maturity master list and process
- Develop EMS Maturity Framework deployment feedback mechanism
- Deployment and implementation

“ IAEG’s ISO14001 and EMS Implementation program is well thought out and nicely supported with resource materials. This initiative will drive EMS adoption and environmental performance improvements across the aerospace value chain. The published Maturity Framework, Assessor Qualification and Maturity Evaluation tools are designed to support companies in a realistic and pragmatic manner along this journey in order for the industry to achieve the continuous environmental performance we desire. I am proud to be a Work Group member and to support this important undertaking with my fellow IAEG members.”

MONTY LOVEJOY
Ramboll
Work Group Member



Emerging Regulations

WG9

- ✓ Provide updates on global emerging regulations in 30 prioritized countries, provided by 3rd party
- ✓ Regulatory alerts developed for member companies for their supply chain

2021 Accomplishments

ISSUED 10 REGULATORY ALERTS:

- EU REACH Annex XVII – Diisocyanate Restrictions
- Taiwan Toxic and Concerned Chemical Substances Control Act (TCCSCA)
- Chinese Ministry of Ecology and Environment Order 15
- Basel Convention Plastic Waste Amendment
- Stockholm Convention EPA 2019 Amendment
- US EPA Final Rules on Five PBT Chemicals and Update
- Kigali Amendment and Global HFC Regulations
- EU REACH Annex XVII Entry 68 – PFCAs
- USA – the phase down of HFCs regulation
- Global PFAS Regulatory Update

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ISSUED 2 FACT SHEETS:

- UK REACH Regulation
- US EPA TSCA PBTs

FACILITATED 1 WEBINAR:

- UK REACH

ISSUED 6 NEWSLETTERS:

2022 Goals

- Issue regulatory alerts and supply chain fact sheets based on evaluation and prioritization
- Facilitate webinars
- Publish Emerging Chemical and Environmental Newsletters



“ Working together with IAEG WG 9 members and service providers is an effective way to identify and provide emerging regulations’ relevant information to IAEG memberships and their supply chain. The newsletter which has been created this year gives a general overview of what is happening in the top 50 countries of interest to the member companies.”

MICHEL RENAULT
Thales Group
Deputy Work Group Leader



Message from Communications Officer

It was exciting to celebrate IAEG’s 10-year anniversary throughout 2021. We reflected on the organization’s many accomplishments; shared testimonials from member companies; and expanded our social media presence with a regular cadence of articles highlighting IAEG Workgroup activities. The COVID-19 pandemic still limited our ability to gather together in 2021 and forced members to work in different ways, but the collaboration and productivity levels remained strong. Following are some highlights from our IAEG communications team:

Welcome to several new IAEG BOD members:

- **Julien Dezombre**
Bombardier Aviation
- **Thibault Normand**
Safran
- **Kathleen Oldham**
Bell Flight
- **Costa Triantafyllidis**
L3 Harris Technologies
- **David Graeber**
Boeing
- **Stanley Merritt**
Northrup Grumman

And thank you to all who served previously.

Congratulations to our IAEG 2021 Award Winners:

Congratulations to both the nominees and winners! Members were nominated by their peers for their outstanding contribution to an IAEG Work Group or the organization overall, specifically relating to their contributions to IAEG’s efficiency & effectiveness, strategic development, and customer value. The 2021 winners were:

- | | |
|---|--|
| • Olivier Barret
<i>Airbus</i> | • Cindy Kloehn
<i>Airbus</i> |
| • Francois Corman
<i>Safran</i> | • Rick Shanks
<i>Raytheon Technologies</i> |
| • Sandra Gridley
<i>Raytheon Technologies</i> | • Blair Smith
<i>Raytheon Technologies</i> |
| • Bruce Griffin
<i>Boeing</i> | • Erin Yaeger
<i>Raytheon Technologies</i> |

Special recognition to Sally Gestautas, Raytheon Technologies, for her lifetime achievement award and Jill Palmer, Northrup Grumman, for her many years of service to the organization.

Strong communications outreach as displayed through:

- Weekly LINKEDIN articles
- Expanded LIFT Newsletter
- Member company testimonials
- Creation of IAEG Value Proposition 1-Page
- Frequent IAEG Guest Speakers and Webinars



Looking forward to 2022!

IAEG members should be proud of the accomplishments of 2021. Thank you for your dedication and hard work through a year full of challenges. We look forward to seeing what IAEG members are capable of accomplishing in 2022!



Michele Lewis
IAEG COMMUNICATIONS OFFICER



LEADING EDGE
SOLUTIONS
ACROSS THE
VALUE CHAIN



RESPONSIBLE &
SUSTAINABLE
AEROSPACE
INDUSTRY

A RECOGNIZED GLOBAL BODY FOR AEROSPACE & DEFENSE

46 MEMBER
COMPANIES

70% OF GLOBAL AEROSPACE & DEFENSE
INDUSTRY ARE IAEG MEMBERS

\$488B COMBINED ANNUAL 2020 REVENUES
FOR IAEG (FULL) MEMBERS

\$697B TOTAL GLOBAL AEROSPACE
INDUSTRY 2020 REVENUES

IAEG Full Members

Airbus SAS
ATR
BAE Systems
Boeing
Bombardier
Dassault Aviation
De Havilland Aircraft of Canada Limited
Embraer
GE Aviation
GKN Aerospace

Gulfstream
Honda Aircraft Company, LLC
Honeywell
Howmet Aerospace
Huntsman Advanced Materials
Israel Aerospace Industry
L3Harris Technologies, Inc.
Leonardo Company
Lockheed Martin
Meggitt PLC

Northrop Grumman
Raytheon Technologies
Rolls-Royce
SAAB AB
SAFRAN
Spirit AeroSystems
Textron Inc.
Thales
3M Deutschland GmbH

IAEG Liaison Members

Airbus Canada
Airbus Defence and Space GmbH
Airbus Helicopters (Salamander)
Assent Compliance Inc.
Dassault Systemes Enovia
DXC Technology
Granta Design Ltd
Haley & Aldrich
Hangsterfer's Laboratories, Inc.

National Quality Assurance
Nobilus
Ramboll Environment & Health
Risk & Policy Analysts Ltd
SAFECHM Europe GmbH
Souriau SAS
Tetra Tech
Yordas Group

