



NEW HORIZONS

2022 YEAR-END REPORT

Message from Chair

COP27 (27TH Conference of the Parties to the United Nations Framework Convention on Climate Change) just revealed this: **“A global warming of 2.8°C by the end of the century is now likely to occur unless there are major changes.”**

Global equilibriums and ecosystems, unable to self-regulate to cope with these significant changes, are expected to be severely disrupted, with unknown consequences for life on earth. It is no longer time to procrastinate and take small, isolated measures.

Aeronautical and space, civil and defense, far from being the easy scapegoat of these changes, are not only resolutely committed, but are providing indispensable tools and solutions that we need today.

The technological breakthroughs announced, the introduction of new sources of energy and decarbonised propulsion in the coming years, satellite surveillance, and better traffic management will all be levers for the aerospace sector to effectively achieve Zero Net Emissions by 2050. Tomorrow's clean mobility will, therefore, take place without impacting territories, ground ecosystems, or biodiversity, and by minimizing the consumption of resources.

At IAEG, we are working together, through the sharing of experiences and the exchange of good practices, to meet these challenges. Beyond climate change, we are developing tools and methodologies to systematically address the various phases of the life cycle of our industry's activities,

to reduce our impacts, and to continuously improve their management. We are working to propose initiatives for voluntary and unilateral consideration and use by companies that are both proactive and collective to align the entire Aerospace and Defense value stream to better address sustainability with recognised and shared sectoral assessment grids, considering all Environmental, Social, and Governance (ESG) criteria, in addition to climate change.

The environmental and climate urgency requires us to accelerate our actions.

At IAEG we are acting today to sustain our industry and preserve our world tomorrow.



Dr. Bruno COSTES | BOARD CHAIR | IAEG

Materials and Substances Declaration

WG1



Replacement Technologies

WG2



Greenhouse Gas Management and Reporting

WG3



REACH Authorization and Restriction

WG5



ISO 14001 and Environmental Management System Implementation

WG7



Emerging Regulations

WG9



Aerospace Industry ESG Engagement

WG11





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 is committed to supporting Aerospace and Defense (AD) companies in dealing with the challenges posed by increasing global chemical regulations and the corresponding need for accurate identification of substances of concern in their products. Through the development of an AD declarable substances list, declaration tools compatible to industry standard, information resources, training content, and webinars, WG1 strives to enable and support the voluntary use of data exchange on materials and substances in products in the AD industry and its supply chain.

2022 Accomplishments

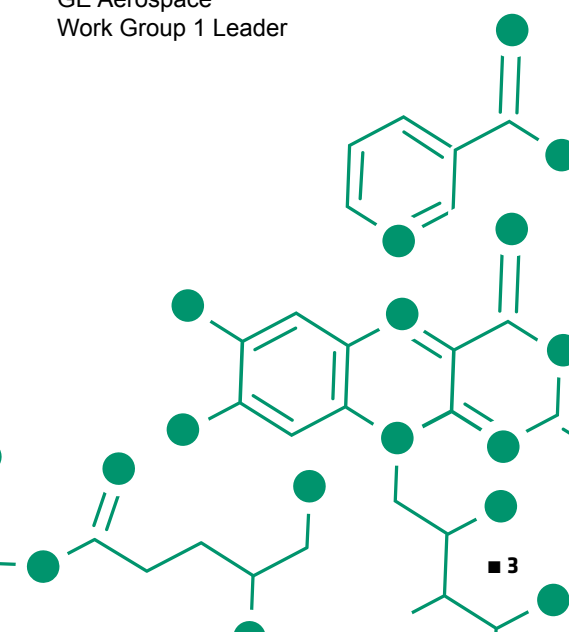
- Published Aerospace and Defense Declarable Substance List (AD-DSL) v6.0—Includes additional substances based on the IAEG member annual screening of regulated substances.
- Completed and released Materials and Substances Declaration Development Document v2.2—Document title and other editorial/formatting changes.
- Conducted webinar to socialize “WG1 & Work Products Connectivity”—Discussed WG1 work products and their benefits.
- Conducted training webinar for Materials and Substances Declaration Development—Reviewed challenges related to declaration development and illustrated with examples of substance mass calculations.
- Joined as liaison member to IEC/ISO Joint Working Group (JWG 16) to advocate for AD data elements of interest inclusion into the multi-sector standard development for material and substances declarations.

2023 Goals

- Publish Aerospace and Defense Declarable Substance List (AD-DSL) v7.0. The v7.0 will include additional substances based on IAEG member annual screening of regulate substances. It will include PFAS substances and remove data attributes to make the list regulation-agnostic.
- Publish Aerospace and Defense Substances Reporting Tool (AD-SRT) v2.0—The v2.0 will align AD-SRT compatibility with the IPC-1754 Amendment 2.0 release.
- Materials and Substances Declaration Contract Terms verbiage*—Help IAEG member companies through education about model contract language, for voluntary and unilateral consideration and use. The use of this work product is at the discretion of the IAEG member companies.
- Publish Materials and Substances Declaration Process Considerations—This document identifies and discusses some key issues to consider related to executing product-related materials and substances declarations in the AD industry.
- Support publication of updated IPC-1754 Supplier Declaration Guidance Document—To guide a non-IT user on the functionality of the IPC-1754 standard.
- Publish Materials and Substances Declaration Development Document v3.0—The v3.0 will contain additional examples on how to calculate the concentration of Declarable Substances when developing a materials and substances declaration.

MUSSIE PIETROS
GE Aerospace
Work Group 1 Leader

**Only available to IAEG members!!*





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.

“ IAEG WG2 provides an opportunity for the Aerospace and Defense industry to collaborate on finding viable alternatives to regulated chemicals. This year, it’s been exciting to see our WG2 project teams engage with chemical formulators, as well as conduct evaluations of alternative materials. Our project teams are actively analyzing the resulting abundance of test data, and we’re looking forward to seeing the conclusions published in 2023.

2022 Accomplishments

WG2 Prioritization Voting

- Improved Prioritization Voting process, an annual activity to assess interest in new replacement projects, by incorporating WG1 Member Screening data and expanding background to better inform selections.

Cadmium Plating Project *(alternatives to cadmium)*

- Completed electrical connector test plan to evaluate which combinations of non-Cd-plating options are functional and mutually compatible.

Chromate Conversion Coating Project *(alternatives to hexavalent chromium)*

- Continued testing on the performance of alternative candidates, and drafted final test report to document all test results and conclusions.

Bond Primer Project *(alternatives to hexavalent chromium)*

- Entered into agreements with 3 suppliers to provide test data on their developmental products, per the IAEG team’s test matrix.

Fuel Tank Coating Project *(alternatives to hexavalent chromium)*

- Determined key fuel tank coating requirements. Finalized NDAs with 6 suppliers to exchange data on their developmental products.

Corrosion Inhibiting Primer Project *(alternatives to hexavalent chromium)*

- Launched project, with 9 participating companies, during the October 2022 Face-to-Face meeting.

2023 Goals

WG2 Communication Plan

- Implement a communications plan to increase awareness of WG2 deliverables and accomplishments.

Four Replacement Project Teams will publish reports

- Cadmium Plating—Electrical Connector Testing.
- Chromate Conversion Coating—Testing Report on Alternative Materials.
- Bond Primer—Developmental Products Summary.
- Fuel Tank Coatings—Requirements Document and Summary of Companies’ Internal Evaluations.

Corrosion Inhibiting Primer Project

- Exchange internal performance requirements for corrosion-inhibiting primers, and develop test matrix to evaluate candidates.

MICHELLE MCELVAINE

The Boeing Company
Work Group 2 Co-Leader

MARGARET PROUL

Lockheed Martin
Work Group 2 Co-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.



2022 Accomplishments

Computation Tool for Scope 3 Category 1 & 2

- Released 1st update of tool.

Guidelines for Calculating Commercial and Business Aviation Scope 3 Category 11 Use of Sold Products

- Developed communications package.
- Released fact sheet & guidelines for calculating commercial and business aviation.
- Held webinar.

WG3 Scope Expansion

- Evaluated adding Scope 3 Category 11 for military products and science-based targets (SBT).

New/Updated GHG Emissions Reporting Standards & Regulations

- New ISO norms 14064-1, 14069 and 14083.
- Mandates for reporting: US SEC, EU CSRD.



2023 Goals



- Release 2nd update to Scope 3 Category 1 & 2 guidance to address mass-based and spend-based discrepancies for select commodities; add new commodities.
- Guidelines to be cascaded globally via national professional organizations.
- Pilot phase for Scope 3 Category 11 to be completed with group of suppliers.
- Develop enriched FAQs and adapt guidance based on feedback.
- Work with IAEG Board of Directors to make a decision on scope extension then will initiate work as appropriate.
- Continue to monitor and respond to any new or updated GHG standards and regulations.



Our mission in Work Group 3 on Green House Gas Emissions—GHG—is to:

REDUCE aerospace industry cost and burden through standardized GHG accounting and reporting

ENABLE consistent GHG reporting within the aerospace supply chain

ENCOURAGE GHG disclosure across the industry

In the past years we have established Sectorial Guidelines for Scopes 1 & 2 and a subset of Scope 3, and a Computation tool for Scope 3 Category 1 & 2 Purchased goods and services, Capital goods. In 2022, we have developed and started to deploy a new guideline covering Scope 3 Category 11 Use of Sold Products for Commercial applications. And more to come, to cover the needs expressed by the Aerospace Industry, and to anticipate on the new regulations for GHG emissions reporting.

BRUNO DARBOUX

Airbus
Work Group 3 Leader



REACH Authorization and Restriction



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

2022 Accomplishments

- Completed detailed formulator mapping for critical 10th recommendation Substances of Very High Concern (SVHCs) for inclusion in Annex XIV (Substances Subject to Authorisation), including the siloxanes and terphenyl.
- Finished preliminary mapping for 11th recommendation SVHCs for inclusion in Annex XIV, including elemental lead.
- Assessed Tetraethyllead's (TEL) inclusion in Annex XIV in the context of Aerospace and Defense use.
- Updated SVHC Matrix to include information on substances under threat of REACH Restriction that may affect the business continuity of the Aerospace and Defense industry.

2023 Goals

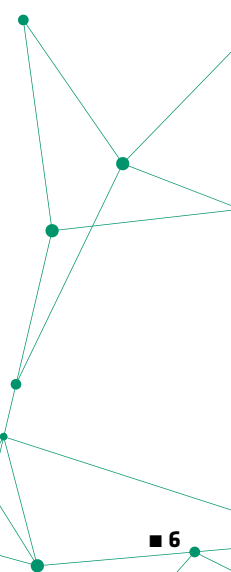


- Monitor the ongoing EU REACH Revision to ensure that WG5 activities are flexible, relevant and valuable to members.
- Define the REACH Restriction risk mitigation workflow and WG5 activities in the context of REACH Public Consultations.
- Develop additional supply chain mapping reports based on established priorities, including:
 - Anticipated 12th recommendation SVHCs.
 - Follow on detailed assessments for elemental lead and 11th recommendation substances.
 - Substances under threat of REACH Restrictions relating to A&D usage.



The scope of WG5 has increased this year in addition to the number of consultants actively working on projects for the members; this is a direct result of the ever changing and ever complex regulatory landscape that affects Aerospace and Defense companies. Now more than ever, WG5 provides an invaluable forum for members to collaboratively address shared risks and develop common approaches to mitigate them. Access to representative supply chain data on the uses of at risk SVHCs and substances under threat of REACH Restriction allows members to benchmark themselves amongst their peers.

JOSEPH MCCARTHY
Leonardo, UK
Work Group 5 Leader





ISO 14001 and Environmental Management System (EMS) Implementation

WG7

- ✓ Provides 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.

2022 Accomplishments

- Continued translations of EMS Maturity Framework material.
- Published 'Environmental Management System Implementation—At a Glance.'
- Refreshed website.
- Developed EMS Maturity Framework deployment feedback mechanism.
- Proposed WG7 run mode.

 **FRENCH**
SPANISH
GERMAN
PORTUGUESE



2023 Goals

- Publish translated EMS Maturity Framework material.
- Deploy run mode and feedback mechanism.
- Develop and implement run mode sustainment strategy.
- Communicate.

“ IAEG’s ISO 14001 and EMS Maturity Framework program continues to mature and expand its accessibility. The WG-7 team has expanded the foreign language translations of our working documents and guidance to include translation in French, Spanish, German and Portuguese. Allowing for Aerospace suppliers around the globe to leverage these tools for improving their Environmental Management systems. Internally, the group continues to develop the tools and resources to help deploy and manage the maturity process. These tools will aggregate supplier EMS maturity status for easy reference by entirety of the aerospace industry.

It continues to be both an honor and privilege to work alongside my fellow IAEG WG-7 members from across the industry, and appreciate the professionalism and depth of knowledge and passion for environmental stewardship they continually bring to our team.

TERRY LEE
The Boeing Company
Work Group 7 Member



Emerging Regulations WG9

- ✓ Provides updates on global emerging regulations in 30 prioritized countries.
- ✓ Regulatory alerts developed for member companies for their supply chain.

“ Work Group 9 continues to provide value to member companies and their supply chain. IAEG assists many companies by providing up to date and relevant regulatory changes, helping IAEG member companies to stay informed and manage risks associated with regulatory updates. The newsletter continues to be a very popular resource for the Aerospace and Defense Industry!

M. LISA BROWN
Lockheed Martin
Work Group 9 Leader

2022 Accomplishments

- 135** regulations reviewed (15 prioritized)
- 9** newsletters
- 6** regulatory alerts
- 2** fact sheets
- 1** webinar
- Country of interest** survey results

2023 Goals

- ISSUE**
 - 3** fact sheets
 - 10** regulatory alerts
 - 12** newsletters
- DEVELOP**
 - INTERACTIVE DATABASE**
 - 2022** country of interest survey results
- FACILITATE**
 - 3** webinars





Aerospace Industry ESG Engagement WG11

- ✓ Establish ESG assessment that includes risk-based validation of assessment results, for voluntary and unilateral consideration and use by Aerospace companies.
- ✓ Driving continuous improvement of Aerospace industry ESG performance through awareness campaigns for their supply chain.



2022 Accomplishments

- Launched WG11 in February.
- Engaged membership in week of action to build the 2022 plan.
- Developed requirements for reusable sustainability assessments.
- Developed the stakeholder value proposition.
- Held our first ESG engagement webinars.
- Selected a vendor to power IAEG reusable sustainability assessments.

2023 Goals

- Roll out IAEG reusable sustainability assessments.
- Start building the IAEG sector level ESG dashboard.
- Target sector level ESG improvement opportunities.
- Roll out ESG engagement webinars and events beyond IAEG members.



We are all about Environmental, Social and Governance

(ESG) engagement on route to sector level progress. IAEG offers a unique opportunity to collaborate compliantly on issues that affect the aerospace sector. Work Group 11 has made a fast start in 2022 and selected a vendor to power its Reusable Sustainability Assessments. I am excited to see what more we can achieve together in 2023.

PHILL GODFREY

Raytheon Technologies
Work Group 11 Co-Leader



The level of interest and support from existing and new

IAEG members has been great and underlines the growing importance of ESG for our sector. Having written and completed the first chapter of our journey together in 2022, I'm really looking forward to engaging with everyone to write the rest of our book to help define our future.

MARK WALKER

Airbus
Work Group 11 Co-Leader

It was a busy year of collaboration for IAEG, returning to in person meetings and growing our newest Work Group 11, which is focused on Environmental Social Governance (ESG) challenges and reporting. We continued to expand our social media presence, sharing IAEG leadership cameos, key messages from guest speakers, and regulatory updates, and hosting Work Group led webinars for supply chain education. Website updates were implemented to make it easy to find IAEG tools and work product. Following are some highlights from our IAEG communications team:

Welcome to several new IAEG Board of Directors members

- **Paul Michaud**
Bombardier
- **Sarah Vonach**
Dassault Aviation
- **Geraldine Barnuevo**
GE Aviation

And thank you to all who served previously.

Congratulations to our IAEG 2022 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. This year's winners are:

- **David Graber** - *Boeing*
- **Elie Haddad** - *Haley & Aldrich*
- **Dr. Wilfried Michaelis** - *Airbus*
- **Jill Palmer** - *Northrop Grumman*
- **Lucine Reinbold** - *Raytheon Technologies*
- **Michele Lewis** - *Raytheon Technologies*

Special recognition to Glynis Clouter and Erin Yaeger, Raytheon Technologies, for their many years of service to the organization.

Welcome to New Members

IAEG Member companies represents 70% of Global Aerospace and Defense Industry. Aerospace OEM's can join as Full Members and any interested company, corporation, trade association, consulting company, or university may join IAEG as a Liaison Member.

Membership Benefits include:

- Have a voice in promoting the development of voluntary consensus standards addressing environmental and sustainability concerns
- Participate in a forum for dialog on industry optional approaches for implementation of environmental and sustainability requirements.

A warm welcome to IAEG's newest liaison members, Aero Montreal and Capgemini.

Return to Face-to-Face Collaboration!

While the COVID pandemic has challenged us to work productively in a virtual environment, like many organizations, IAEG began the return to in person meetings. Starting small with in-person Executive Committee and Strategic Planning Committee meetings, IAEG held its Fall Technical Meeting in Toulouse, France.

With over 120 participants, it was the first in-person IAEG event for many member participants! It was a highly productive gathering, with engaging dialogue, problem solving, guest speakers, and networking.

Looking forward to 2023!

IAEG members should be proud of the accomplishments of 2022. Thank you for your strategic execution and collaboration throughout the year as IAEG works towards its vision and strives for responsible and sustainable aviation. We hope everyone returns from the holiday season refreshed and invigorated to tackle environment challenges and sustainability in our industry.

Looking forward to seeing what IAEG members can accomplish next year!

Kathleen Oldham

BELL TEXTRON INC.
IAEG DEPUTY COMMUNICATIONS
OFFICER

Year-end message from the IAEG Strategic Planning Committee

Officer

IAEG's Strategic Planning Committee (SPC) has a critical role in evaluating new developments of relevance to our industry and proposing vision and strategic priorities for the organization to IAEG's Board of Directors.

During the October 2022 face-to-face meeting, the SPC validated that current work being undertaken by the various IAEG Work Groups aligns very well with our 2025 vision. Notably, the SPC leveraged IAEG's recent scope expansion from environmental to ESG (environmental, social and governance) by facilitating the launch of our newest work group (WG11) that covers Aerospace Industry ESG Engagement. The SPC assisted IAEG by considering several options and recommending particular focus and direction for the work group. This extensive "pre-work" enabled a very efficient launch of the work group to maximize their alignment and immediate productivity. As another example of the SPC's contribution, the Committee evaluated and concurred that it was beneficial to the industry to expand the charter of the Greenhouse Gas Management & Reporting work group (WG3) to add the Scope 3 "Use of Sold Products" emission to their GHG reporting guidance.

Looking forward to 2023, the SPC intends to review IAEG's current vision and strategic priorities for overall alignment and progress. Additionally, the SPC plans to champion advancement of improvements for IAEG's organizational effectiveness.

Sandra Gridley

PRATT & WHITNEY
SPC CO-LEADER



Did you see? IAEG has a New Look!

Since its inception, in 2011, the International Aerospace Environmental Group (IAEG) focus has been on addressing human health and environmental issues of particular importance to the aerospace industry. Launching on many collaborative successes and expanding scope to address not only Environment but also Social and Governance (ESG) issues of significance to the aerospace industry, IAEG has a new face that reflects our vision.

As a recognized global body for Aerospace and Defense (A&D) sector, IAEG continues to create leading-edge solutions across the value chain. We are excited to have a look that reflects our holistic vision, developing and sharing good practices with member companies and their suppliers to help them prepare for emerging regulatory requirements.

Responsible. Sustainable. ESG.

We continue to commit to our vision! Will you come along?



LEADING EDGE
SOLUTIONS
ACROSS THE
VALUE CHAIN



RESPONSIBLE &
SUSTAINABLE
AEROSPACE
INDUSTRY

A RECOGNIZED GLOBAL BODY FOR AEROSPACE & DEFENSE

47 MEMBER
COMPANIES

70% OF GLOBAL AEROSPACE AND 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

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Assent Compliance Inc.
Capgemini
Dassault Systemes Enovia
DXC Technology
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