

Introduction to IAEG®

International Aerospace Environmental Group

Dr Bruno COSTES
IAEG Chief Operating Officer



IAEG®

INTERNATIONAL AEROSPACE
ENVIRONMENTAL GROUP®

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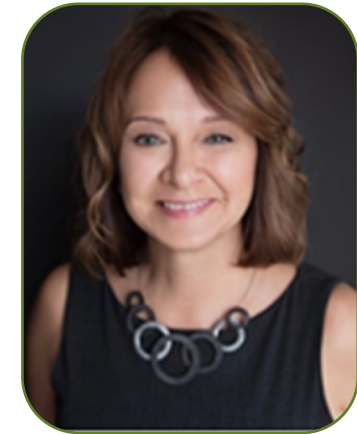


Environment Innovation Solutions

Defence
Aerospace
Forum
Synergy

IAEG® was founded in 2011 with a vision to advance innovative environmental solutions for the aerospace and defence industry. Starting with 11 Founding members, now at 50 members, this collaboration forum is designed to address pertinent environmental issues that all member companies face. As we have grown, we have found tremendous value and synergy in working these non-proprietary issues together, for the betterment of the industry at large.

Sally Gestautas | Board Chair



REVENUE FOOTPRINT

**\$400
BILLION**

OUT OF AN
APPROXIMATE
\$700 BILLION
INDUSTRIAL BASE*



EMPLOYMENT FOOTPRINT

SLIGHTLY OVER **1 MILLION**



OUT OF A ROUGHLY **2 MILLION**
INDUSTRIAL BASE*

*Deloitte, 2014 Global aerospace and defense sector financial report

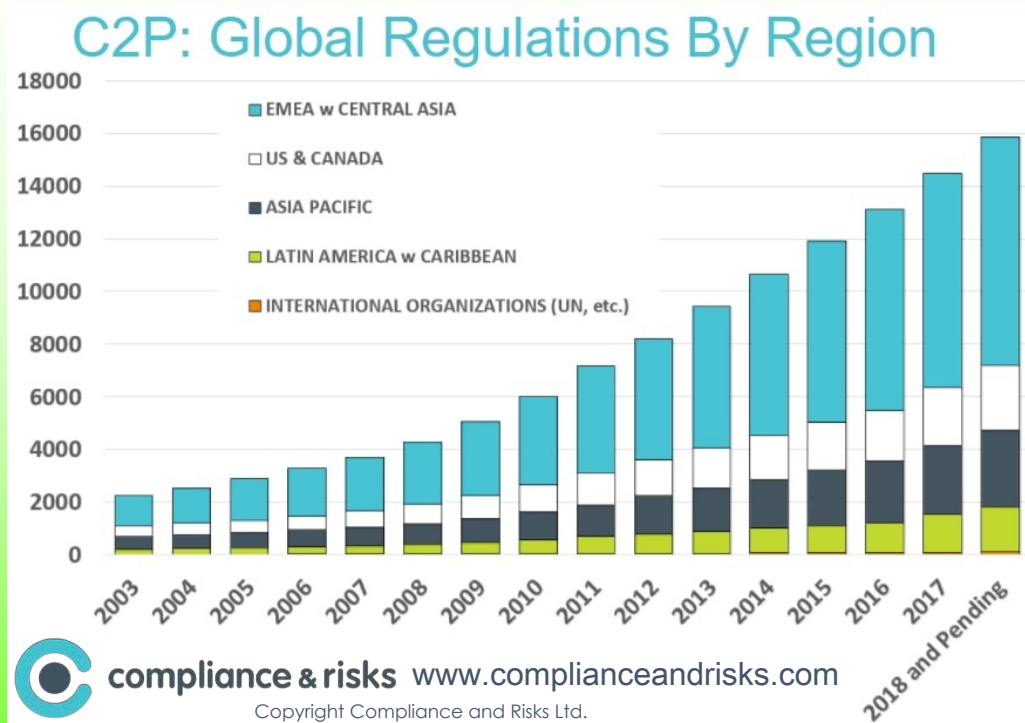
SOLUTIONS

COMPLEX AND
INNOVATIVE
PRODUCTS
THAT LAST

DECADES
IN THE MARKETPLACE



REGULATIONS ON THE RISE – AVERAGE 13% ANNUALLY



SUPPLY CHAIN COMPLEXITY & DEMAND FOR IMPROVED RISK MANAGEMENT



Aerospace & Defence Industry – Working Together to Develop Common Resources

WHY JOIN IAEG® ?



- To get involved in a **network** comprised of over 50 aerospace and defence companies and their **HSE and supply chain executives**
- To ensure industry **solutions** address unique **aerospace and defence industry issues**.
- To access **information** developed on **substance regulation**, including comprehensive educational materials.
- To access **up-to-date notes** regarding upcoming **environmental regulations**.
- To benefit from sharing **good practices** and **environmental solutions**.
- To **minimize** your administrative burdens and compliance **costs**.



IAEG MEMBER COMPANIES (AS OF 12/31/2018)

Airbus	Bombardier Inc	Granta Design Ltd	Israel Aerospace Industries Ltd	Raytheon Company	SurTec International GmbH
Airbus Defence & Space GmbH	Cobham	Gulfstream Aerospace Corp	Lockheed Martin Corp	Rockwell Collins	TetraTech
Airbus Helicopter	Dassault Aviation	Hangsterfer's Laboratories Inc	Meggitt	Rolls-Royce	Textron Aviation
Arconic	Dassault Systems Enovia Corp	Harris Corporation	Mitsubishi Aircraft Co	Saab AB	Thales
ASCO Industries	DXC technology	Honda Aircraft Company LLC	National Quality Assurance	Safechem Europe GmbH	UTC (Pratt & Whitney)
Assent Compliance Inc	Embraer	Honeywell Engines Systems & Services	Northrup Grumman	Safran SA	Zaki Surface Treatment Consulting LLC
BAE Systems	ERM	Huntsman Advanced Materials	Papros	Sauriau SAS	"Zodiac Aerospace
Bergeson & Campbell PC	GE Aviation		Ramboll Environment & Health	Spirit AeroSystems Inc	3M Deutschland GmbH
Boeing Co	GKN Aerospace			SR Technics Switzerland Ltd	

*Merged with Safran SA in 2018



Founding Members

AIRBUS



BOMBARDIER
the evolution of mobility



NORTHROP GRUMMAN



Rolls-Royce



Chair: Sally Gestautas, Raytheon

Vice Chair: Pending

COO: Bruno Costes, Airbus

BOARD OF DIRECTORS

Airbus, Arconic, Boeing, Bombardier Aerospace, Collins Aerospace, Dassault Aviation, Embraer, GE Aviation, Lockheed Martin, Northrop Grumman, Pratt & Whitney, Raytheon, Rolls Royce, SAFRAN, Thales Group



Materials and
Substances
Declaration



Replacement
Technologies



REACH
Authorisation

SUBSTANCES REGULATIONS



Greenhouse
Gas Reporting

ISO
14001

ISO14001 and
EMS
Implementation

ENVIRONMENTAL MGT



REACH Reg. &
TSCA & Brexit



Emerging
Regulations

2019
NEW

SUPPLY CHAIN RISK

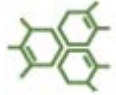


Environmental
Qualification

2019
NEW

WE KNOW – WE ACT

CONTINUITY OF SUPPLY



SUBSTANCES AT RISK

Short term

Materials & Substance Declaration

- ✓ Common Industry standard
 - List of Declarable Substances, AD-DSL
 - Data Exchange, IPC 1754
- ✓ Simple Reporting Tool



Mid & long term

Supply Chain Risk

- ✓ REACH Authorization
- ✓ Obsolescence risk
- ✓ TSCA regulation impact
- ✓ BREXIT Impact analysis

Material Group	CL entry	CAS Number	IAEG (DSL) Member count
UV	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	21
	Diazene 1,2-dianthracene	129-79-8	15
	Triethyl phosphate	25155-23-1	13
Phthalate	1,2-Benzomethanedicarboxylic acid, mixed decyl and hexyl and octyl diesters	68648-93-1	6
Borate	Sodium perborate, perboric acid, sodium salt	7632-04-4	5
Phthalate	Dihexyl phthalate (DHP)	84-75-3	4
UV	2,4-Di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	8864-99-1	4
Borate	Sodium perborate, perboric acid, sodium salt	15120-21-5	2
Borate	Sodium perborate, perboric acid, sodium salt	15117-20-9	2
Phthalate	1,2-Benzomethanedicarboxylic acid, dihexyl ester, branched and linear (DHP)	68515-50-4	2
UV	2-(2H-benzotriazol-2-yl)-4-(4-tert-butyl)-6-(4-tert-butylphenyl)phenol (UV-350)	36437-37-3	2
Borate	Sodium perborate, perboric acid, sodium salt	11138-47-9	1
Borate	Sodium perborate, perboric acid, sodium salt	12040-72-1	1
Borate	Sodium perborate, perboric acid, sodium salt	37244-98-7	1
Phthalate	1,2-Benzomethanedicarboxylic acid, mixed decyl and hexyl and octyl diesters	68515-51-5	1
UV	2-Benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	8846-71-7	1
Karaneol	5-Sec-butyl-2,2,4,4-dimethylcyclohex-3-en-1-yl 5-methyl-1,3-dioxane [11, 5]	No CAS	1
	sec-butyl-2,4,6-dimethylcyclohex-3-en-1-yl 5-methyl-1,3-dioxane [11, 5]	available	0

NEW ALTERNATIVE TECHNOLOGIES

Replacement Technologies

- ✓ R&D Collaboration
 - Cd plating
- ✓ Technical Exchange
 - Hard Chrome Plating
 - Chromate Bonding Primer
 - Corrosion Inhibiting Epoxy Primer
 - Chromate Conversion Coating
 - Anodize Seal

GLOBAL EMERGING REGULATIONS AND STANDARDS



WE KNOW – WE ACT

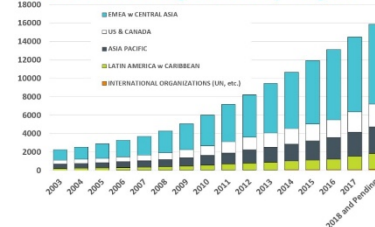


GLOBAL EMERGING REGULATIONS AND STANDARDS

- US and Northern America,
- China and Asia Pacific
- Europe
- Others
- Standards (ISO, National,...)

Mid term

C2P: Global Regulations By Region



Short Term

ENVIRONMENTAL QUALIFICATION

Supply Chain Environmental performance and risk mitigation

- ✓ Common requirements
- ✓ Common evaluation and auditing scheme
- ✓ Common database

GHG Reporting Guidance for the Aerospace Industry

A Supplement to the GHG Protocol Corporate (Scope 1 and 2) and Value Chain (Scope 3) Accounting and Reporting Standards

International Aerospace Environmental Group – Work Group 3

Publication Date: July 2019
Version: 2

Local electronic and printed copies are not controlled.
Refer to the IAEG website for the latest version.



CDP, DJSI,...

COMMUNICATION WITHIN THE SUPPLY CHAIN

- ✓ Supply Chain Risk Assessment - Fact Sheets
- ✓ Supply Chain Webinars



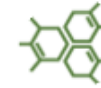
Materials and Substances Declaration

Program Description

Define a harmonized and standard way for aerospace and defense corporations to gather information from the supply chain on chemicals in mixtures, materials, and products.

WG1

Deliverables



COLLABORATED with Association Connecting Electronics Industries (IPC) 2-18k to publish IPC-1754



PUBLISHED Aerospace & Defence Substance Reporting Tool (AD-SRT) V1



DEVELOPED Aerospace and Defence Declarable Substances List (AD-DSL) V3
(awaiting publishing)

2019 GOALS 🎯

- ✓ Publish AD-DSL V3
- ✓ Release AD-SRT V2





Program Description

Development of a methodology for the identification and evaluation of alternatives that can substitute substances and technologies of concern. Prepare for M&P replacements and conduct projects in a collaborative approach.

WG2

Deliverables



CORROSION INHIBITING EPOXY PRIMERS (CIEP)

- Conducted gap analysis of current replacement candidates
- Created screening test specification tool



HARD CHROME PLATING

- Conducted data sharing and gap analysis



NON-CHROMATE BONDING PRIMER

- Collected data on key applications and requirements



CHROMATE CONVERSION COATINGS

- Conducted data sharing and gap analysis
- Technical exchange / best practice sharing



CADMIUM PLATING

- Met with National Aerospace Standards Committee (NASC)
- Conducted supplier surveys/identified replacement candidates



ANODIZED SEAL

(LAUNCHED NEW PROJECT)

2019 GOALS

- | | | |
|--|---|-----------------------------|
| ✓ CIEP Final Report | ✓ Cd Plating Testing Starts | ✓ Anodize Seal Final Report |
| ✓ Chromate Conversion Coating Final Report | ✓ Bond Primer and Hard Chrome Plating Final Reports | |





Program Description

Regularly assess substances that may be subjected to EU REACH Authorisation, to identify those in use in the aerospace industry that may require Authorisation, in order to assure business continuity.

WG5

Deliverables



COMPLETED Nonylphenol Ethoxylates (NPE)/
Octylphenol Ethoxylates (OPE) Supply Chain
Mapping task



WG5 MEMBERS LAUNCHED NPE/OPE
Independent consortium



LAUNCHED Bisphenol A (BPA)/Anhydrides
Supply Chain Mapping task



COMPLETED Supply Chain Mapping task
of June 2017 Annex XIV prioritized substances

2019 GOALS 🎯

- ✓ Determine Next Substance(s) to Map
- ✓ Launch new Substance Mapping (plan for 2 new)
- ✓ Complete BPA/Anhydrides Tasks





GHG Management and Reporting

Program Description

Standardize reporting and management methods for Greenhouse Gas (GHG) emissions within the aerospace industry.

WG3

Deliverables



COMPLETED V3 DRAFT OF GHG SUPPLEMENTAL GUIDANCE



- Approved by World Resource Institute



- Built on GHG Protocol accreditation



PROJECT INITIATED WITH CARBON CONSULT GROUP AND CARBONE 4 TO RESEARCH AND DEVELOP GUIDANCE ON ACCOUNTING FOR INDIRECT (SCOPE 3) EMISSIONS

- Purchased goods and services
- Capital goods

2019 GOALS

- ✓ GHG Supplemental Guidance V3 Published
- ✓ Complete Scope 3 Guidance Project
- ✓ Additional Scope 3 Guidance Issued





ISO 14001 and EMS Implementation

Program Description

Develop an ISO 14001:2015 transition document that will provide an A&D sectorial interpretation of relevant external issues and Interested parties. Determine what aspect of the product lifecycle that can be influenced or controlled. Include justifications for determinations.

WG7

Deliverables **ISO 14001**



TSCA Inventory and Brexit Impact Analysis

Program Description

Develop a common interpretation of the TSCA law and harmonized strategy to ensure that substances important to the A&D industry are active for chemical manufacturers, importers and processors.

Minimize impacts to the supply chain of a potential BREXIT no deal scenario.

WG8

Deliverables



TSCA INVENTORY NOTIFICATION

- Developed Supply Chain Fact Sheet and Processor Fact Sheet
- Collaborated with WG1



BREXIT

- Developed Supply Chain Survey and Fact Sheet
- Hosted webinar series

2019 GOALS 📌

- ✓ Launch a new Work Group: Impact Analysis of Global Environmental and Chemical Regulations, Policies and Standards (AKA Emerging Regulations)



Emerging Regulations

Program Description

Develop an approach to help the Aerospace industry evaluate emerging global environmental and chemical regulations, policies, and standards and their impact on compliance and potential operational risk for companies and their supply chain.
Maintain a list a global regulations, policies and standards, including executive summaries of those regulations.

WG9

Objectives



Maintain a list a global regulations, policies and standards, including executive summaries of those regulations.

Develop a method to evaluate the emerging regulation's potential impact on compliance, operational risk, business continuity and/or impact on supply chain.

Develop summaries of the associated timeline for regulations and highlight the specific impacts.

Develop communication materials and conduct informational webinars, as appropriate.



Environmental Qualification Program

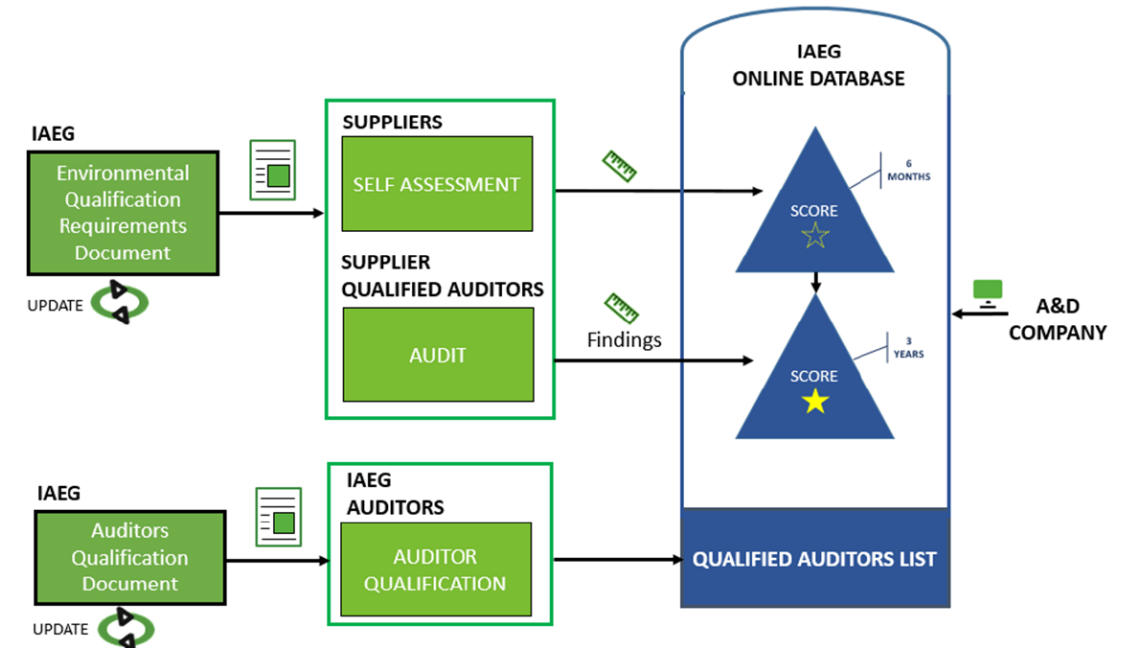
Program Description

Develop an Environmental Qualification Program capable of:

- Evaluating environmental performance and risks of the aerospace supply chain, thus enabling monitoring and/or mitigation
- Driving continuous improvement of aerospace supply chain environmental performance
- Reducing costs and minimizing administrative burden through a sectorial aerospace approach

WG10

Scheme



HOW TO CONTRIBUTE TO IAEG® ?

- ✓ Regular Working Groups meetings as appropriate – **by Webex**
- ✓ Monthly meetings as updates on Working Groups status – **by Webex**
- ✓ Dedicated meetings : Board, Executive, Strategic, Compliance, Finance, Communication, Recruiting – **by Webex**
- ✓ Training sessions – **Webinar**
- ✓ Biannual meetings – **Face to Face**
 - Board meeting
 - Plenary session
 - WG session, exchanges of Good Practices
 - Exhibition

Examples:

Monthly Conference Calls

- 2019 April - no meeting
- 2019 May 9
- 2019 June 13
- 2019 July 11
- 2019 August 8
- 2019 September - no meeting
- 2019 October 10
- 2019 November 14
- 2019 December 12

Board of Directors (IAEG Board Members Only)

- 2019 April 12 - IAEG Face-to-Face Board Meeting
- 2019 June 20 - IAEG Virtual Board Meeting
- 2019 September 26 - IAEG Face-to-Face Board Meeting
- 2019 December 5 - IAEG Virtual Board Meeting

Executive Committee Meetings

- Conference Call first and fourth Tuesday of each month

HOW TO JOIN IAEG® ?

Membership Overview

IAEG welcomes new members. Aerospace Companies¹ are eligible for IAEG membership as long as they meet IAEG's eligibility requirements and agree to abide by a Membership Compliance Program instituted by the Board of Directors.

Membership Levels

Founding Member – The Founding Members are specified in IAEG's Bylaws because of their critical technical and financial support, which allowed the formation of IAEG.

Full Member – In order to qualify as a Full Member, an applicant must be an aerospace company.

\$15 000 or \$20 000 / year

Liaison Member – Any interested company, corporation, trade association, consulting company, or university may join IAEG as a Liaison Member.

\$5 000 / year

IAEG[®] 2019 FACE TO FACE MEETINGS

Meetings

2019 April 8 - 12
San Diego, California, USA



2019 September 23 - 26



LE BOURGET PRESENTATION EVENT



LE BOURGET AIR SHOW
PRESENTATION EVENT

2019

Dear Manager,

The International Aerospace Environmental Group (IAEG®), a nonprofit organization, founded in 2011 by 11 major aerospace and defense companies to collaborate and share innovative environmental solutions, is pleased to invite you to its breakfast presentation on

June 20 from 9:00 am to 11:30 am at Le Bourget Auditorium.

During the presentation, representatives of IAEG will provide an overview of:

- IAEG's mission, vision and core activities; and
- The value to you and your company of joining IAEG.

Anyone who is interested in learning more about IAEG is welcome to attend. *Attendance is free of charge.*

To register simply [click here](#)

A confirmation email will be sent to you afterwards.

We sincerely hope that you will be able to attend the meeting.
Yours faithfully,

IAEG
Chief Operating Officer
Bruno Costes



Innovation
Environment
Aerospace
Forum
Solutions
Synergy

THANK YOU

Q & A SESSION