ENABLE THE USE OF NEW AVIATION FUEL (SAF)

Industry Accepted New Fuel Process (ASTM D7566),

and Underlying Supporting Principals (ICAO, Regulators, OEMs)

innospec

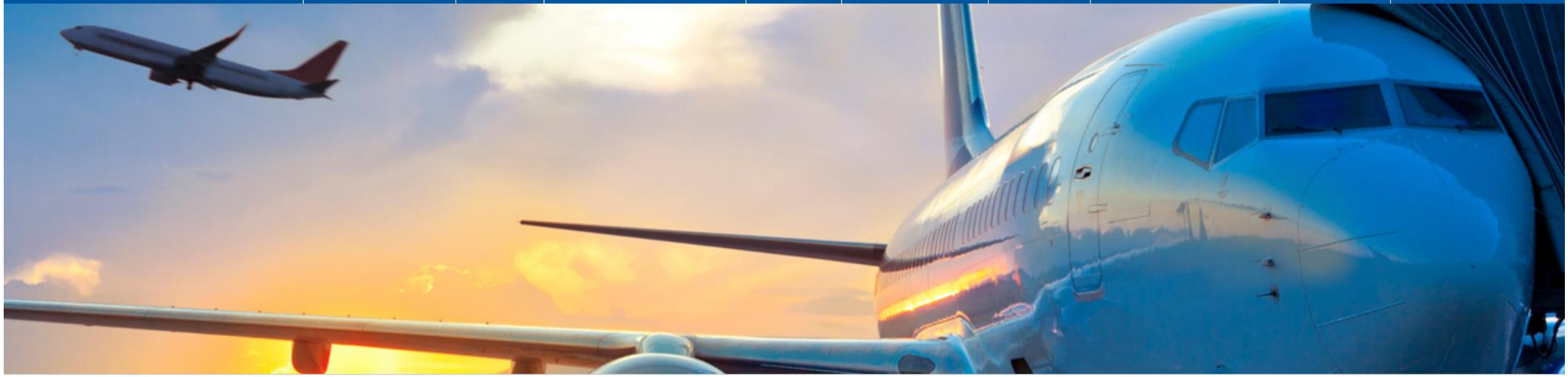
INTERNATIONAL AVIATION

UN Agency

ICAO UNITING AVIATION
A UNITED NATIONS SPECIALIZED AGENCY

Search...

About ICAO | Global Priorities | Events | Information Resources | Careers | UnitingAviation | ICAO TV | Subscribe



ICAO / About ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO - United Nations agency develops global regulations and recommended practices for 193 member countries to cooperate in international aviation.

Establishes and reviews international technical regulations for: aircraft operation and design, crash investigation, the licensing of personnel, telecommunications, meteorology, air navigation equipment, ground facilities for air transport, and search-and-rescue missions

innospec

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO - United Nations agency develops global regulations and recommended practices for 193 member countries to cooperate in international aviation.

Establishes and reviews international technical regulations for: aircraft operation and design, crash investigation, the licensing of personnel, telecommunications, meteorology, air navigation equipment, ground facilities for air transport, and search-and-rescue missions

National regulations are enforced in, and by, sovereign states, and which must be legally adhered to by air operators making use of applicable airspace and airports.

Regulators ability to influence jet fuel specifications

innospec

JET FUEL SPECIFICATION

Nationals Regulators Authority

Grants Authority

innospec

NATIONAL REGULATORS

innospec

NATIONAL REGULATORS AUTHORITY

Aviation Regulators Focus on Equipment (OEM's)

Aircraft Parts

Focused on Equipment

Engineering Drawings → **Manufacturing** → **Installation**

Regulatory Authority - Exists Over Entire Supply Chain

innospec

REGULATORS - SOME PLAY MORE CRITICAL ROLE

Regulators in a *state of design* - *i.e.* that have OEMs, provide initial approvals for equipment.

The remaining country regulators by ICAO reciprocity accept approvals of equipment from regulators with OEM's in their jurisdictions.

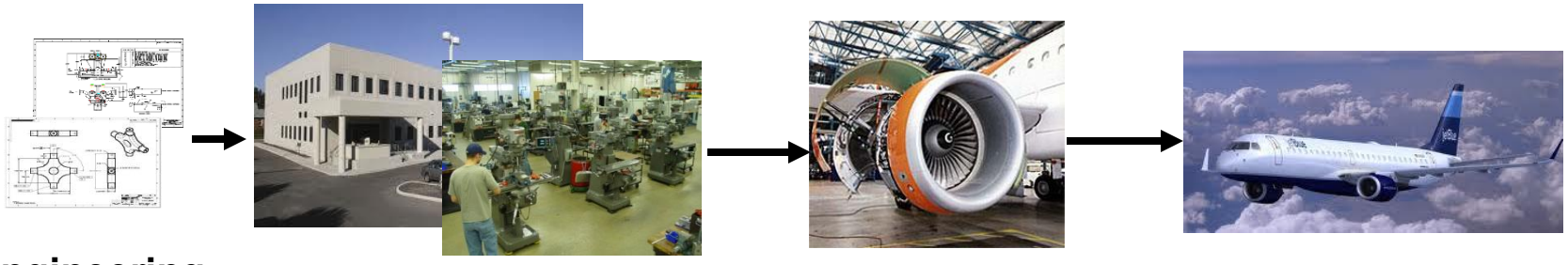
innospec

NATIONAL REGULATORS AUTHORITY

Aviation Regulators Focus on Equipment and also Operation of the Equipment

Aircraft Parts

Focused on Equipment



Engineering Drawings → **Manufacturing** → **Installation** → **Operation**

Regulatory Authority - Exists Over Entire Supply Chain

innospec

REGULATORS (ACHIEVE) CONTROL

Regulating OEMs – Fuel Identification

Assigns Operational Responsibility

AIRBUS

GE Aerospace

BOEING

Honeywell

SAFRAN

Grants Authority

ICAO · OACI · ИКАО
国际民航组织 · ايكاو

innospec

OPERATIONAL CONTROL – IDENTIFIED FUEL TYPE

Fuel is considered an Operation Limitation. - Aircraft is Certificated to only use a Specified Fuel

National Airworthiness Authorities Regulate Equipment

do not approve jet fuel or jet fuel producers (excluding Russia and China),

they certify aircraft to operate on a *specified fuel* - (*Jet A, Jet A-1*)

innospec

REGULATORY OVERSIGHT

Amardeep

Production

Transport

Storage

Regulatory authority control of fuel quality begins at wing of airplane*

…but, the Aviation Authorities don't test aviation fuel at uplift to aircraft! Why not?

* In most countries, but excludes China and Russia and some others

innospec

REGULATORY OVERSIGHT

JIG

energy institute

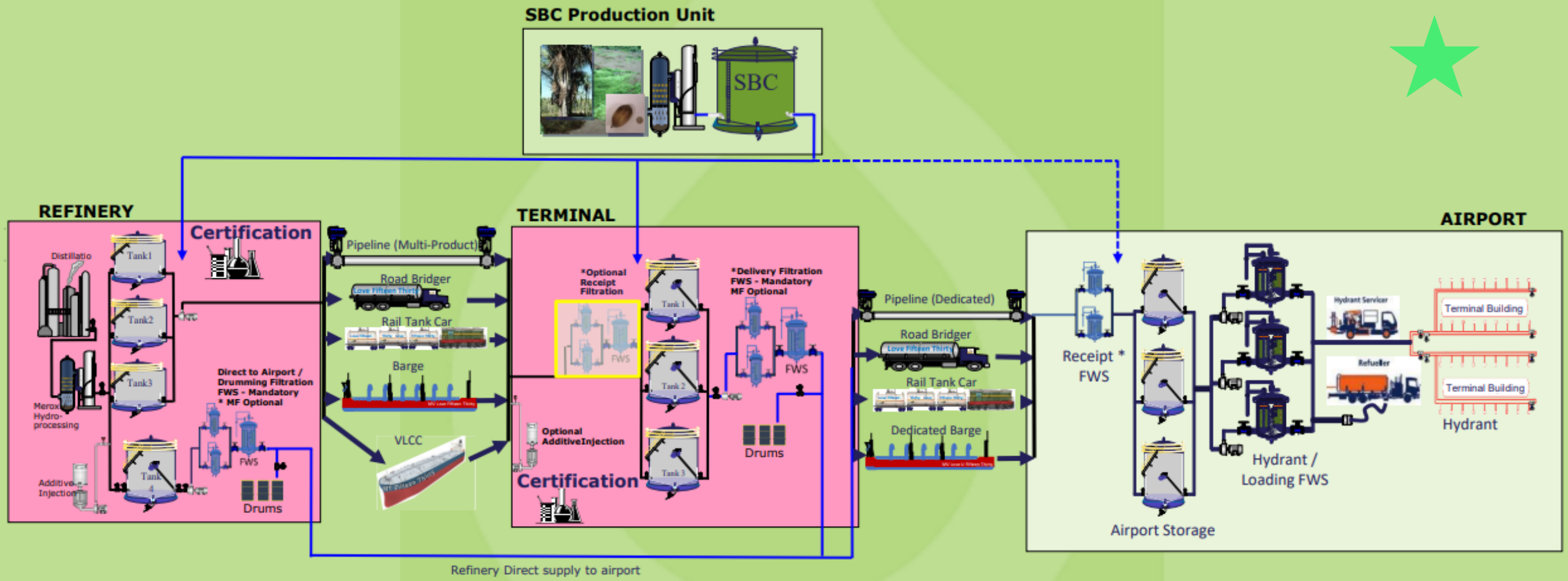
Airlines for America®
We Connect the World

IATA

API

innospec

EI Supply Chain Fuel Quality Sub-Committee



……..EI/JIG 1530……..EI 1535…….HM 50……..HM59……..HM93……..

……..JIG 2…….. ……..JIG 1……..

……SAF Supplement EI 1533……..

……EI 1540……..EI 1560……

……API 1543……..API 1595……

……ATA 103……..

INDUSTRY QUALITY CONTROLS

JIG

energy institute

Airlines for America®
We Connect the World

IATA

API

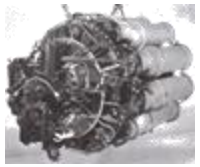
Industry Quality Control Systems -
Built Around Industry/Military *Fuel Specifications*

innospec

CIVIL AVIATION INDUSTRY – RELIES ON

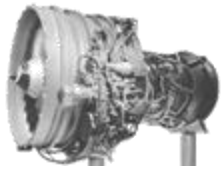
COMPOSITION AND PROPERTIES OF JET A/A-1 FUEL

Jet A/A-1 Fuel



1950's

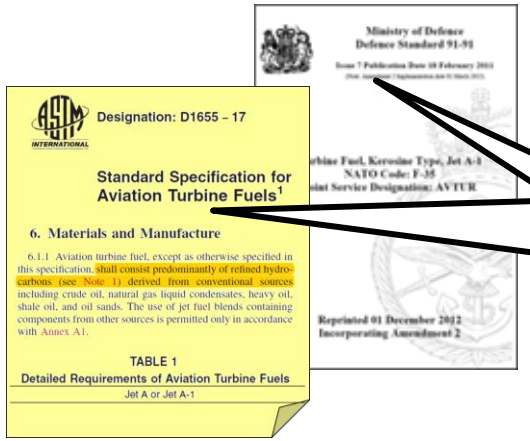
1970's



1990's

2000's

New Engines



ASTM D1655 & DEF STAN 91-091 Jet Fuel Specifications

Western world has two primary jet fuel specifications that describe Jet A and Jet A-1properties

innospec

INDUSTRY QUALITY CONTROLS

DSTAN UK Defence Standardization

ASTM INTERNATIONAL Standards Worldwide

DSTAN UK Defence Standardization

ASTM INTERNATIONAL Standards Worldwide

DSTAN UK Defence Standardization

ASTM INTERNATIONAL Standan

JIG

energy institute

Airlines for America®
We Connect the World

IATA

API

Industry Quality Control Systems -
Built Around Industry/Military *Fuel Specifications*

innospec

HISTORICAL JET FUEL PROCESS

Recap

Assigns Operational Responsibility

AIRBUS

GE Aerospace

BOEING

Honeywell

SAFRAN

Grants Authority

Regulate Equipment & Operations

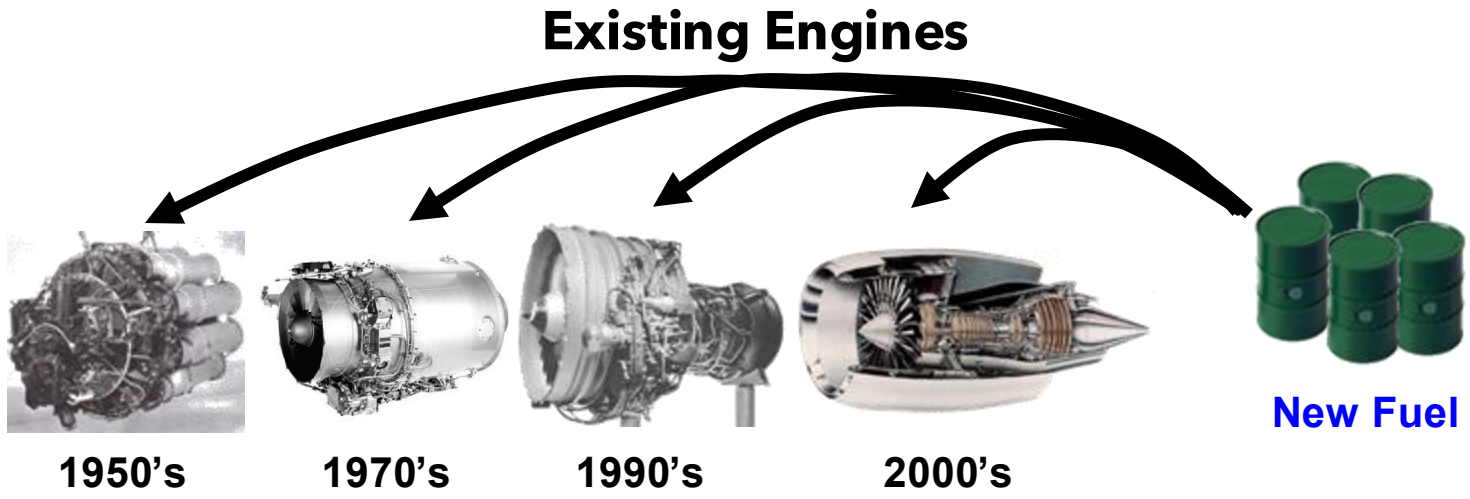
(Jet A / Jet A-1) Fuel is an Operation Limitation

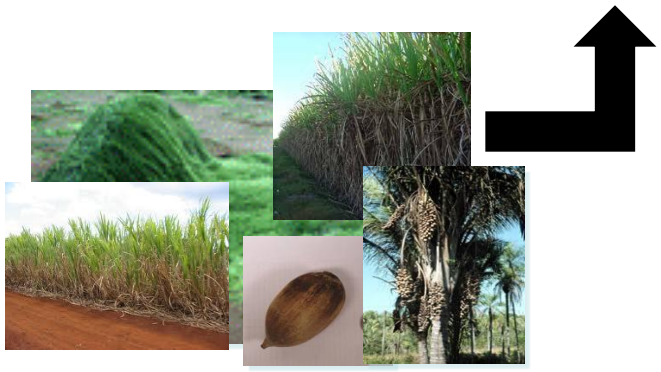
Jet A / Jet A-1 Fuel is Specified by ASTM D1655 or Def Stan 91-091

What do we do with New Fuels - SAF?

innospec

SATF (OR SAF)





How do we enable the use of a new fuel in existing equipment

???

innospec

HISTORIC REGULATOR FUEL PROCESS

1. Fuel Specification Development & Issuance

Recertification - Onerous Process (Financial and Logistical Difficulties)

New Jet Fuel Spec

Requires a New Operating Limitations

2. Certification of Each Engine/Aircraft Model

Engine Operating Limitations

Aircraft Operating Limitations

Aircraft Flight Manual

Fly on the New Fuel

innospec

JET FUEL SPECIFICATION

Dictate Requirements to Specification Drafters

Assigns Operational Responsibility

AIRBUS

GE Aerospace

BOEING

Honeywell

SAFRAN

Grants Authority

Dictate Requirements

Develop Methodology for New Fuels

innospec

ENABLING THE USE OF SYNTHETIC JET A/A-1 FUEL

SATF Evaluation per ASTM D4054

"Drop-In" Fuel

1. Fuel Specification Development & Issuance

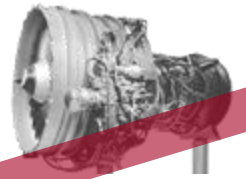
ASTM D7566

New Jet Fuel Spec

Meets Existing Operating Limitations

New Operating Limitations Required

2. Certification of Each Engine/Aircraft Model



Engine Operating Limitations

Aircraft Operating Limitations

Aircraft Flight Manual

Fly on the New Fuel

innospec

ENABLING THE USE OF SYNTHETIC JET A/A-1 FUEL

SATF Evaluation per ASTM D4054

"Drop-In" Fuel
It is Jet A/A-1 Fuel

1. Fuel Specification Development & Issuance

ASTM INTERNATIONAL Standards Worldwide

ASTM D7566

New SATF Meets Conventional Jet Fuel Composition & Properties

Meets Existing Operating Limitations

2. Certification of Each Engine/Aircraft Model

Engine Operating Limitations

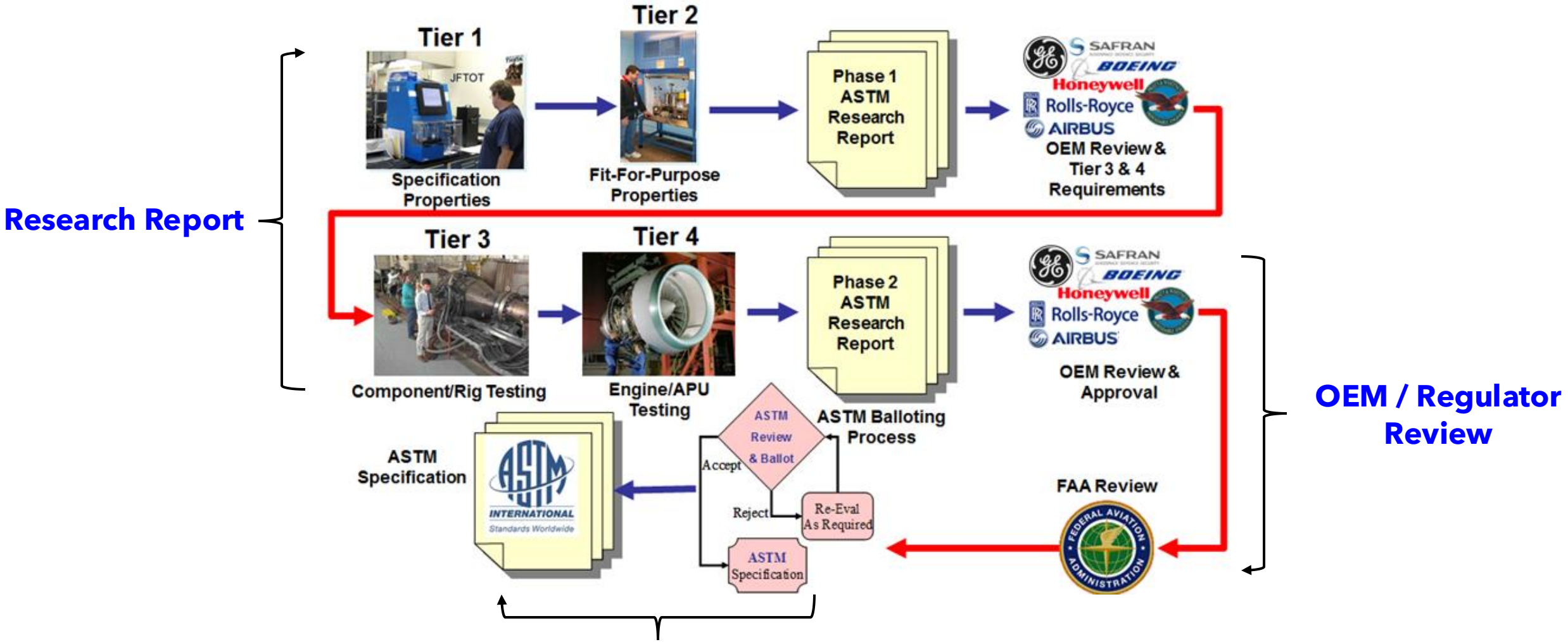
Aircraft Operating Limitations

Aircraft Flight Manual

Fly on the New Fuel

innospec

D4054 PROCESS



New SBC Annex Added to D7566

ENABLING THE USE OF SYNTHETIC JET A/A-1 FUEL

SATF Evaluation per ASTM D4054

"Drop-In" Fuel
Jet A/A-1 Fuel

1. Fuel Specification Development & Issuance

ASTM INTERNATIONAL Standards Worldwide

ASTM D7566

New SATF Meets Conventional Jet Fuel Composition & Properties

Meets Existing Operating Limitations

2. Certification of Each Engine/Aircraft Model

Engine Operating Limitations

Aircraft Operating Limitations

Aircraft Flight Manual

Fly on the New Fuel

innospec

ASTM D7566

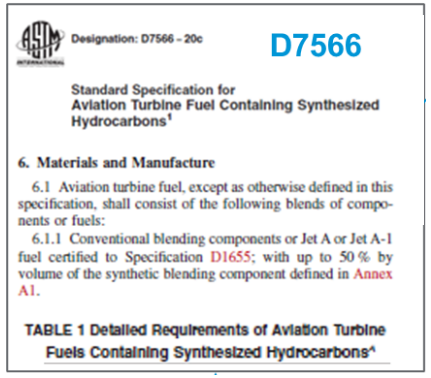
Designation: D7566 – 24b

Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons[1]

Meeting D7566 Requirements = “Drop in Fuel”

innospec

D7566 IS A FUEL SPECIFICATION



Designation: D7566 – 20c

D7566

Standard Specification for
Aviation Turbine Fuel Containing Synthesized Hydrocarbons[1]

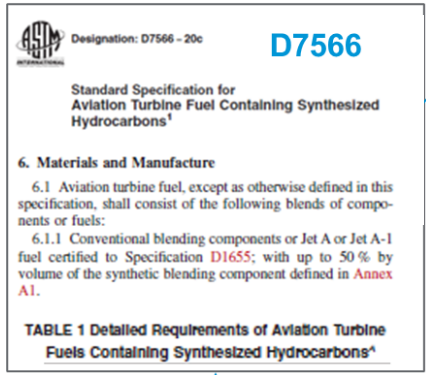
6. Materials and Manufacture

6.1 Aviation turbine fuel, except as otherwise defined in this specification, shall consist of the following blends of components or fuels:

6.1.1 Conventional blending components or Jet A or Jet A-1 fuel certified to Specification D1655; with up to 50 % by volume of the synthetic blending component defined in Annex A1.

TABLE 1 Detailed Requirements of Aviation Turbine Fuels Containing Synthesized Hydrocarbons[A]

UNIQUE CRITERIA FOR EACH SBC



Designation: D7566 – 20c

D7566

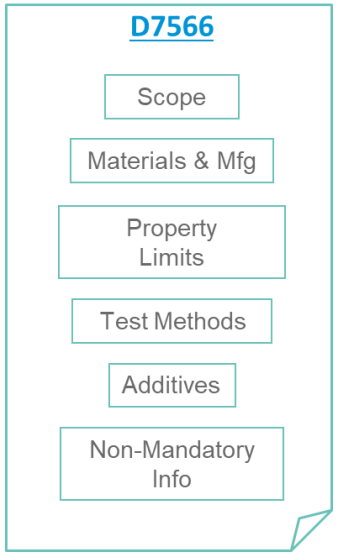
Standard Specification for
Aviation Turbine Fuel Containing Synthesized Hydrocarbons[1]

6. Materials and Manufacture

6.1 Aviation turbine fuel, except as otherwise defined in this specification, shall consist of the following blends of components or fuels:

6.1.1 Conventional blending components or Jet A or Jet A-1 fuel certified to Specification D1655; with up to 50 % by volume of the synthetic blending component defined in Annex A1.

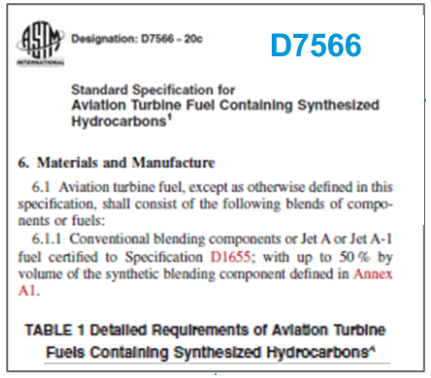
TABLE 1 Detailed Requirements of Aviation Turbine Fuels Containing Synthesized Hydrocarbons[A]



Annex A1	Annex A2	Annex A3	Annex A4	Annex A5	Annex A6	Annex A7	Annex A8
FT-SPK	HEFA-SPK	SIP	FT-SPK/A	ATJ-SPK	CHJ	HC-HEFA	ATJ-SKA

Unique Criteria in each Annex for different SBC

UNIQUE CRITERIA FOR EACH SBC



Designation: D7566 – 20c

D7566

Standard Specification for
Aviation Turbine Fuel Containing Synthesized Hydrocarbons[1]

6. Materials and Manufacture

6.1 Aviation turbine fuel, except as otherwise defined in this specification, shall consist of the following blends of components or fuels:

6.1.1 Conventional blending components or Jet A or Jet A-1 fuel certified to Specification D1655; with up to 50 % by volume of the synthetic blending component defined in Annex A1.

TABLE 1 Detailed Requirements of Aviation Turbine Fuels Containing Synthesized Hydrocarbons[A]

D7566

- Scope
- Materials & Mfg
- Property Limits
- Test Methods
- Additives
- Non-Mandatory Info

Annex A2
HEFA-SPK

Unique Criteria in each Annex for different SBC

UNIQUE CRITERIA

D7566 – 24a

TABLE A2.1 Detailed Batch Requirements; SPK from Hydroprocessed Esters and Fatty Acids[A]

Property		HEFA–SPK	Test Method[B]
COMPOSITION			
Acidity, total mg KOH/g	Max	0.015	D3242/IP 354
VOLATILITY			
Distillation—both of the following requirements shall be met:			
1. Physical Distillation			D86[C] or IP 123[C] or D7344 or D7345
Distillation temperature, °C:			
10 % recovered, temperature (T10)	Max	205	
50 % recovered, temperature (T50)		Report	
90 % recovered, temperature (T90)		Report	
Final boiling point, temperature	Max	300	
T90-T10, °C	Min	22	
Distillation residue, percent	Max	1.5	
Distillation loss, percent	Max	1.5	
2. Simulated Distillation			D2887[D, E] or IP 406
Distillation temperature, °C:			
10 % recovered, temperature (T10)		Report	
20 % recovered, temperature (T20)		Report	
50 % recovered, temperature (T50)		Report	
80 % recovered, temperature (T80)		Report	
90 % recovered, temperature (T90)		Report	
Final boiling point, temperature		Report	
Flash point, °C	Min	38[F]	*D56* or D3828[G], D7236[G], IP 170[G], IP 523[G] or IP 534[G]
Density at 15 °C, kg/m³		730 to 772[H]	D1298 or IP 160, D4052 or IP 365
Freezing point, °C	Max	–40	D5972/IP 435, D7153/IP 529, D7154 or IP 528, or *D2386/IP 16*
Existent gum, mg/100 mL	Max	7	*D381*, IP 540
FAME, mg/kg	Max	<5[I]	IP 585 or IP 590
Thermal Stability (2.5 h at control temperature)[J]			
Temperature, °C	Min	325[K]	*D3241*[L] */IP 323*[L]
Filter pressure drop, mm Hg	Max	25	
Tube rating: One of the following requirements shall be met:[M]			
(1) Annex A1 VTR, VTR Color Code	Less than	3	
		No peacock or abnormal color deposits	
(2) Annex A2 ITR or Annex A3 ETR or Annex A4 MWETR, nm avg over area of 2.5 mm²	Max	85	
ADDITIVES			
Antioxidants, mg/L[N]	Min	17	
	Max	24	

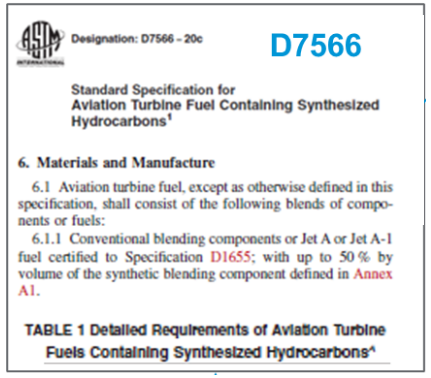
TABLE A2.2 Other Detailed Requirements; SPK from Hydroprocessed Esters and Fatty Acids[A]

Property		HEFA–SPK	Test Method[B]
Hydrocarbon Composition			
Cycloparaffins, mass percent	Max	15[C]	D2425
Aromatics, mass percent	Max	0.5	D2425
Paraffins, mass percent		Report	D2425
Carbon and Hydrogen, mass percent	Min	99.5	D5291
Non-hydrocarbon Composition			
Nitrogen, mg/kg	Max	2	D4629/IP 379
Water, mg/kg	Max	75	D6304 or IP 438
Sulfur, mg/kg	Max	15	*D5453* or D2622
Metals			
(Al, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Pd, Pt, Sn, Sr, Ti, V, Zn), mg/kg	Max	0.1 per metal	D7111 or UOP 389
Halogens, mg/kg	Max	1	D7359

[A] For compliance of test results against the requirements of Table A2.2, see 7.4.
[B] The test methods indicated in this table are referred to in A2.6.2. The referee test methods are italicized where applicable.
[C] Maximum cycloparaffin composition is based on current experience with the approved synthetic blending components and is within the range of what is typical for refined jet fuel.

Unique Criteria in each annex to control blending components

UNIQUE CRITERIA BLEND % SBC



Designation: D7566 – 20c

D7566

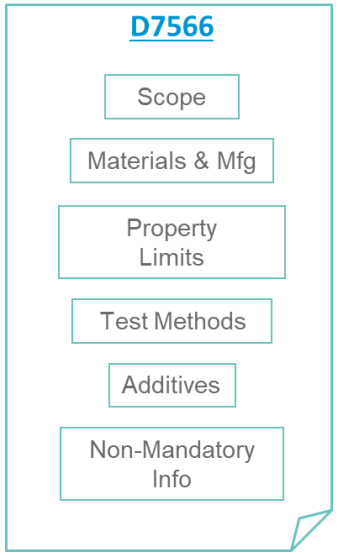
Standard Specification for
Aviation Turbine Fuel Containing Synthesized Hydrocarbons[1]

6. Materials and Manufacture

6.1 Aviation turbine fuel, except as otherwise defined in this specification, shall consist of the following blends of components or fuels:

6.1.1 Conventional blending components or Jet A or Jet A-1 fuel certified to Specification D1655; with up to 50 % by volume of the synthetic blending component defined in Annex A1.

TABLE 1 Detailed Requirements of Aviation Turbine Fuels Containing Synthesized Hydrocarbons[A]

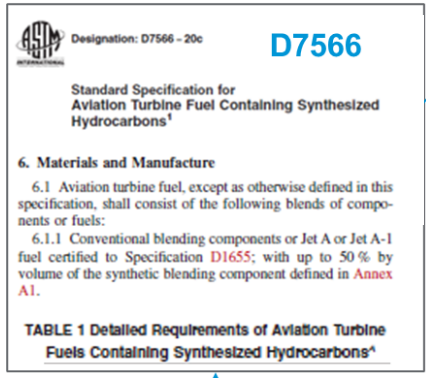


Annex A1	Annex A2	Annex A3	Annex A4	Annex A5	Annex A6	Annex A7	Annex A8
FT-SPK (50%)	HEFA-SPK (50%)	SIP (10%)	FT-SPK/A (50%)	ATJ-SPK (50%)	CHJ (50%)	HC-HEFA (10%)	ATJ-SKA (50%)

Additional Requirement - dictating max allowable % of each SBC

innospec

ADDITIONAL REQUIREMENTS D7566



Designation: D7566 – 20c

D7566

Standard Specification for
Aviation Turbine Fuel Containing Synthesized Hydrocarbons[1]

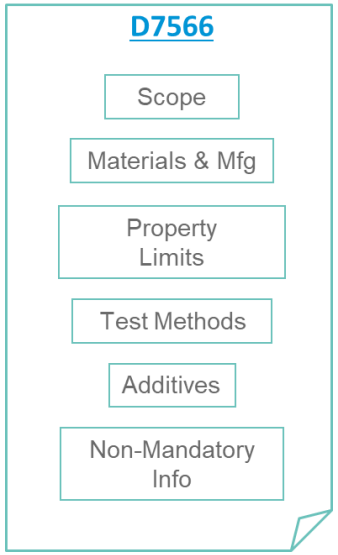
6. Materials and Manufacture

6.1 Aviation turbine fuel, except as otherwise defined in this specification, shall consist of the following blends of components or fuels:

6.1.1 Conventional blending components or Jet A or Jet A-1 fuel certified to Specification D1655; with up to 50 % by volume of the synthetic blending component defined in Annex A1.

TABLE 1 Detailed Requirements of Aviation Turbine Fuels Containing Synthesized Hydrocarbons[A]

Additional Requirements in
Table 1 for Blended Fuel



Annex A1	Annex A2	Annex A3	Annex A4	Annex A5	Annex A6	Annex A7	Annex A8
FT-SPK (50%)	HEFA-SPK (50%)	SIP (10%)	FT-SPK/A (50%)	ATJ-SPK (50%)	CHJ (50%)	HC-HEFA (10%)	ATJ-SKA (50%)

TABLE 1 Detailed Requirements of Aviation Turbine Fuels Containing Synthesized Hydrocarbons[A]

Property		Jet A or Jet A-1	Test Method[B]
COMPOSITION			
Acidity, total mg KOH/g	Max	0.10	D3242/IP 354
Aromatics:			
One of the following requirements shall be met:			
1. Aromatics, volume percent		8[C, D] to 25	*D1319* or IP 156,[E] D8267, or D8305[F]
or			
2. Aromatics, volume percent		8.4[C, D] to 26.5	D6379/IP 436
Sulfur, mercaptan,[G] mass percent	Max	0.003	*D3227/IP 342*
Sulfur, total mass percent	Max	0.30	D1266, D2622, D4294, D5453, or IP 336
VOLATILITY			
Distillation			
Distillation temperature, °C:			*D86*,[H] D2887/IP 406,[I] D7344,[J, K] D7345,[J] IP 123[H]
10 % recovered, temperature (T10)	Max	205	
50 % recovered, temperature (T50)		Report	
90 % recovered, temperature (T90)		Report	
Final boiling point, temperature	Max	300	
T50 minus T10	Min[D, L]	15	
T90 minus T10	Min[D, L]	40	
Distillation residue, percent	Max	1.5	
Distillation loss, percent	Max	1.5	
Flash point, °C	Min	38[M]	*D56*, D3828,[N] D7236,[N] IP 170,[N] IP 523,[N] IP 534[N]
Density at 15 °C, kg/m³		775 to 840	D1298, IP 160, D4052, IP 365
FLUIDITY			
Freezing point, °C	Max	–40 Jet A[O] –47 Jet A-1[O]	D5972/IP 435, D7153/IP 529, D7154 or IP 528, or *D2386/IP 16*
VISCOSITY			
One of the following requirements shall be met (whichever is applicable):			
1. The following requirement shall be met for semi-synthetic jet fuel containing Annex A1 or Annex A4 synthesized components blended in accordance with 6.1.1 or 6.1.4, respectively:			
Viscosity –20 °C, mm²/s[P]	Max	8.0	*D445 or IP 71, Section 1*, D7042,[Q] D7945
or			
2. The following requirement shall be met for semi-synthetic jet fuel containing Annex A5 synthetic blend components blended at less than or equal to 30 % by volume in accordance with 6.1.5:			
Viscosity –20 °C, mm²/s[P]	Max	8.0	*D445 or IP 71, Section 1*, D7042,[Q] D7945
or			
3. The following requirements shall be met for semi-synthetic jet fuel containing Annex A2, or Annex A3, or Annex A6, or Annex A7, or Annex A8 synthetic blend components blended in accordance with 6.1.2, or 6.1.3, or 6.1.6, or 6.1.7, or 6.1.8, respectively:			
Viscosity –20 °C, mm²/s[P]	Max	8.0	*D445 or IP 71, Section 1*, D7042,[Q] D7945
and			
Viscosity –40 °C, mm²/s[P]	Max	12	*D445*[R] *or IP 71, Section 1*,[R] D7042,[Q] D7945
or			
4. The following requirements shall be met for semi-synthetic jet fuel containing Annex A5 synthetic blend components blended at greater than 30 % by volume in accordance with 6.1.5:			
Viscosity –20 °C, mm²/s[P]	Max	8.0	*D445 or IP 71, Section 1*, D7042,[Q] D7945
and			
Viscosity –40 °C, mm²/s[P]	Max	12	*D445*[R] *or IP 71, Section 1*,[R] D7042,[Q] D7945
LUBRICITY			
Lubricity[S] mm	Max	0.85	D5001
COMBUSTION			
Net heat of combustion, MJ/kg	Min	42.8[T]	D4529, D3338, *D4809* or IP 12
One of the following requirements shall be met:			
(1) Smoke point, mm, or	Min	25.0	D1322/IP 598
(2) Smoke point, mm, and	Min	18.0	D1322/IP 598
Naphthalenes, volume, percent	Max	3.0	*D1840* or D8305[U]
CORROSION			
Copper strip, 2 h at 100 °C	Max	No. 1	D130 or IP 154
THERMAL STABILITY[V]			
2.5 h at control temperature of 260 °C, min			*D3241*[W] */IP 323*[W]
Filter pressure drop, mm Hg	Max	25	
Tube rating: One of the following requirements shall be met:[X]			
(1) Annex A1 VTR, VTR Color Code	Less than	3 No peacock or abnormal color deposits	
(2) Annex A2 ITR or Annex A3 ETR, or Annex A4 MWETR, nm avg over area of 2.5 mm²	Max	85	
CONTAMINANTS			
Existent gum, mg/100 mL	Max	7	*D381*, IP 540
Microseparometer,[S] Rating			D3948
Without electrical conductivity additive	Min	85	
With electrical conductivity additive	Min	70	
ADDITIVES		See 6.2	

TABLE 1 Detailed Requirements of Aviation Turbine Fuels[A]

Property		Jet A or Jet A-1	Test Methods[B] Referee	Alternative
COMPOSITION				
Acidity, total mg KOH/g	max	0.10	D3242/IP 354	
Aromatics				
(*1*) percent by volume, or	max	25	D1319	IP 156[C] or D8267 or D8305[D]
(*2*) percent by volume	max	26.5		D6379/IP 436
Sulfur, mercaptan,[E] percent by mass	max	0.003	D3227/IP 342	
Sulfur, total percent by mass	max	0.30		D1266, D2622, D4294, D5453, or IP 336
VOLATILITY				
Distillation temperature, °C:			D86[F]	D2887/IP 406,[G] D7344,[H, I] D7345,[H] IP 123[F]
10 % recovered, temperature	max	205		
50 % recovered, temperature		report		
90 % recovered, temperature		report		
Final boiling point, temperature	max	300		
Distillation residue, %	max	1.5		
Distillation loss, %	max	1.5		
Flash point, °C	min	38[J]	D56	D93,[K] D3828,[K] D7236,[K] IP 170,[K] IP 523,[K] or IP 534[K]
Density at 15 °C, kg/m³		775 to 840		D1298/IP 160 or D4052 or IP 365
FLUIDITY[L]				
Freezing point, °C	max	–40 Jet A[M,N]	D2386/IP 16	D5972/IP 435, D7153/IP 529, or D7154/IP 528
		–47 Jet A-1[M,N]		
Viscosity –20 °C, mm²/s[O]	max	8.0	D445/IP 71, Section 1	D7042[P] or D7945
COMBUSTION				
Net heat of combustion, MJ/kg	min	42.8[Q]	D4809	D4529, D3338, or IP 12
One of the following requirements shall be met:				
(*1*) Smoke point, mm, or	min	25.0	D1322/IP 598	
(*2*) Smoke point, mm, and	min	18.0	D1322/IP 598	
Naphthalenes, percent by volume	max	3.0	D1840	D8305[R]
CORROSION				
Copper strip, 2 h at 100 °C	max	No. 1	D130/IP 154	
THERMAL STABILITY[L]				
(2.5 h at control temperature of 260 °C min)				
Filter pressure drop, mm Hg	max	25	D3241[S] /IP 323[S]	
Tube rating: One of the following requirements shall be met:[T]				
(*1*) Annex A1 VTR, VTR Color Code	Less than	3 (no peacock or abnormal color deposits)		
(*2*) Annex A2 ITR or *Annex A3 ETR*, nm average over area of 2.5 mm²	max	85		
CONTAMINANTS				
Existent gum, mg/100 mL	max	7	D381	IP 540
Microseparometer,[U] Rating			D3948	
Without electrical conductivity additive	min	85		
With electrical conductivity additive	min	70		
ADDITIVES		See 6.2		
Electrical conductivity, pS/m		[V]	D2624/IP 274	

Additional Requirements in Table 1 for Blended Jet Fuel

"DROP IN" FUEL

Enhanced Requirements unique for each annex – Synthetic blend component (SBC)

Further Limited by % of each SBC

Additional Requirements for final D7566 blended fuel

D7566 finished bend by default will meet all requirements of D1655

D7566 fuel is Re Identified as D1655 fuel

Drop in Fuel

innospec

What's next? (ASTM D4054)

GE Aerospace

Early data & discussions

Tier 1 & 2

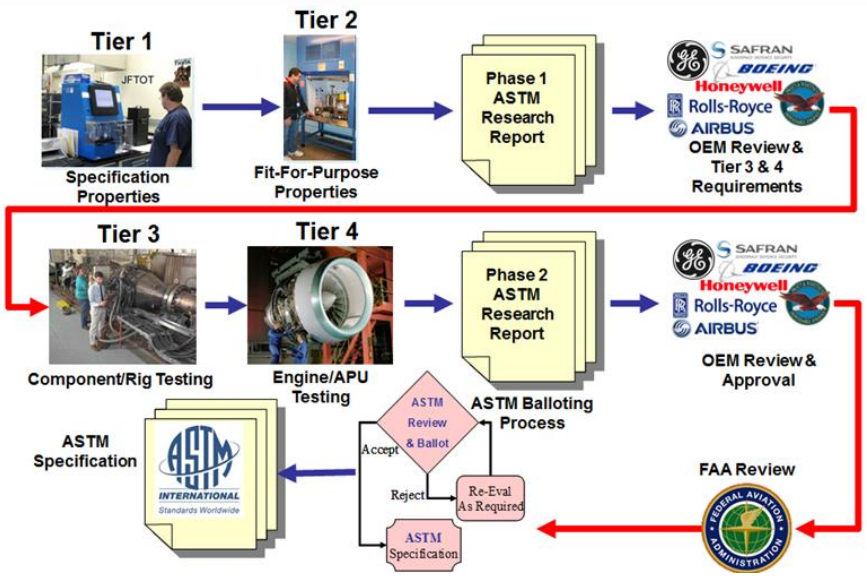
OEM review

Tier 3 & 4

OEM & regulatory agency review

ASTM balloting

Qualification



ASTM D7566

A1: FT-SPK
A2: HEFA-SPK
A3: SIP
A4: FT-SKA
A5: ATJ-SPK
A6: CHJ
A7: HHC-HEFA
A8: ATJ-SKA

What's next? (ASTM D4054)

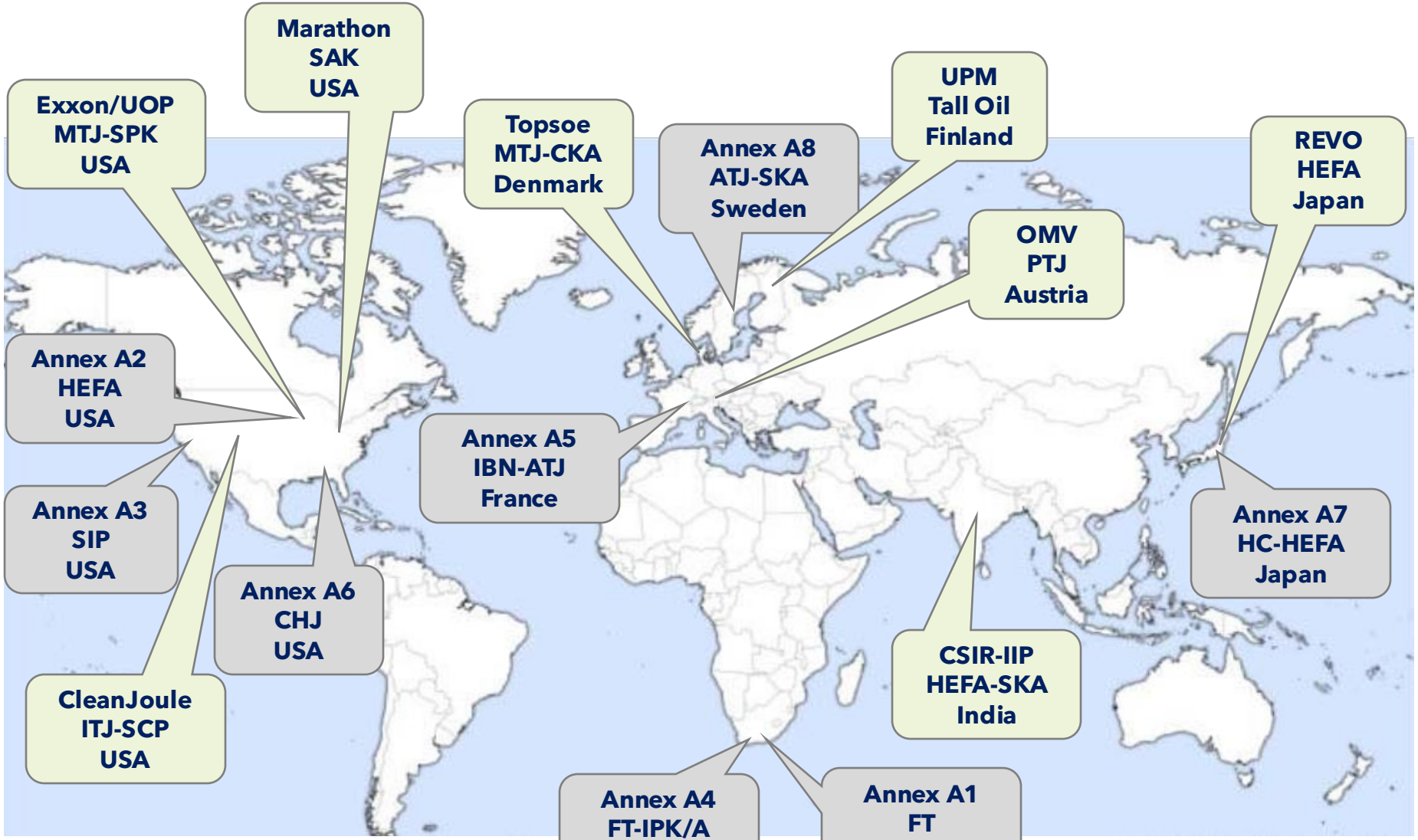
GE Aerospace

Acronyms:

ATJ-SKA:	Alcohol-to-Jet Synthetic Kerosene with Aromatics
ATJ-SPK:	Alcohol-to-Jet Synthetic Paraffinic Kerosene
CHJ:	Catalytic Hydrothermolysis Jet
CPK-0:	Cycloparaffinic Kerosene
FT-SKA:	Fischer-Tropsch Synthetic Kerosene with Aromatics
FT-SPK:	Fischer-Tropsch Synthetic Paraffinic Kerosene
HBTJ:	Hybrid Bio-Thermocatalytic Jet
HDO-SAK:	Hydro-deoxygenation Synthetic Aromatic Kerosene
HEFA-SKA:	Hydro-processed Esters and Fatty Acids Synthetic Kerosene with Aromatics
HEFA-SPK:	Hydro-processed Esters and Fatty Acids Synthetic Paraffinic Kerosene
HHC-HEFA:	Hydroprocessed Hydrocarbons, Esters and Fatty Acids
ITJ-SCP:	Isoprene-to-Jet Synthesized Cycloparaffins
MTJ:	Methanol-to-Jet
PTJ-SKA:	Plastics-to-Jet Synthetic Kerosene with Aromatics
SATF:	Synthetic Aviation Turbine Fuel
SBC:	Synthetic Blending Component
SBTJ:	Sewage Biosolids to Jet
SIP:	Synthetic Iso-paraffins

Gurhan Andac, GE Aerospace, ASTM D02.J06 Chair

ASTM D7566 & D4054 GLOBAL ACCEPTED PROCESS



innospec

JET FUEL SPECIFICATION

"Drop In" Fuel

AIRBUS

GE Aerospace

BOEING

Honeywell

SAFRAN

ROLLS ROYCE

ICAO · OACI · ИКАО

ASTM INTERNATIONAL Standards Worldwide

"Drop In" Fuel Concept

ASTM INTERNATIONAL Standards Worldwide

MINISTRY OF DEFENCE

+++

innospec

JET FUEL SPECIFICATION

Allow Operators to Use SAF AND Still Meet OEM Specification Requireme

AIRBUS

GE Aerospace

PRATT & WHITNEY DEPENDABLE ENGINES

BOEING

Honeywell

SAFRAN

ROLLS ROYCE

ICAO · OACI · ИКАО

ASTM INTERNATIONAL Standards Worldwide

ASTM INTERNATIONAL Standards Worldwide

MINISTRY OF DEFENCE

+++

innospec

ENABLE THE USE OF NEW AVIATION FUEL (SAF)

innospec