EAGOSH MEETING
BUETTELBORN 17 NOV 2010

AIRCRAFT CRASH SITE HAZARDS

POST CRASH MANAGEMENT

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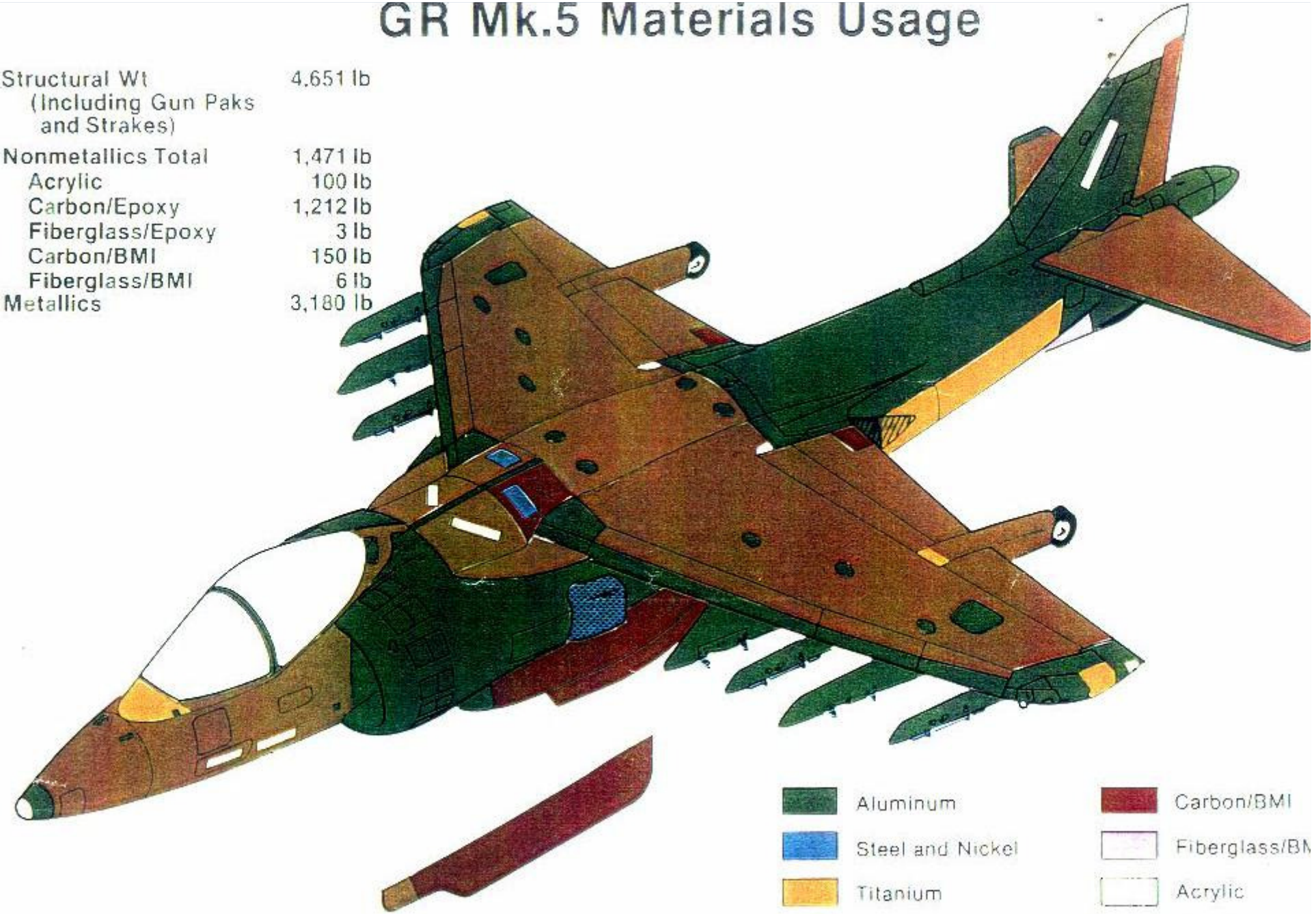
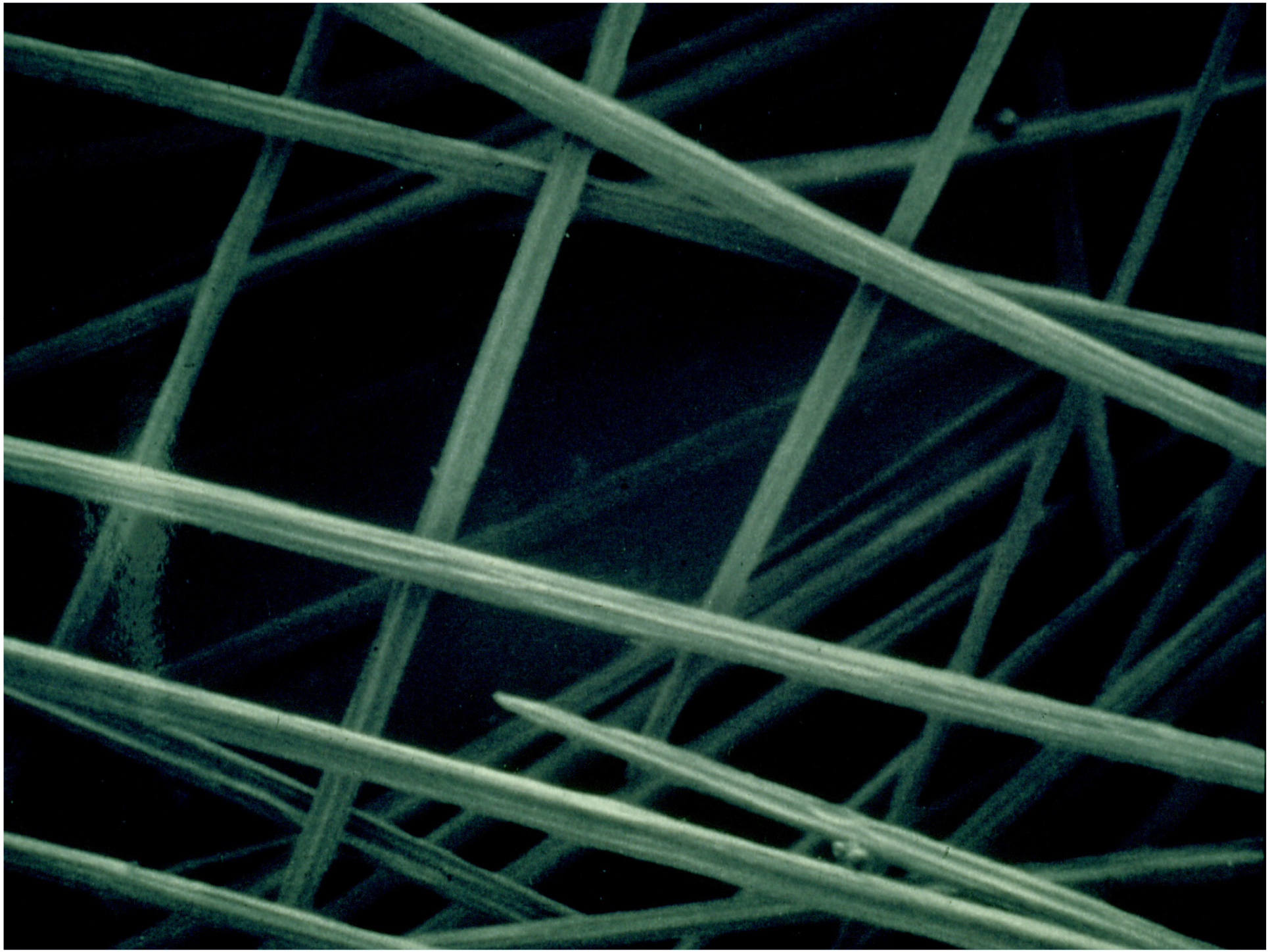
Crash site hazards

GR Mk.5 Materials Usage

Structural Wt (Including Gun Paks and Strakes)	4,651 lb
Nonmetallics Total	1,471 lb
Acrylic	100 lb
Carbon/Epoxy	1,212 lb
Fiberglass/Epoxy	3 lb
Carbon/BMI	150 lb
Fiberglass/BMI	6 lb
Metallics	3,180 lb



Potential Material Changes
Fwd Nozzle Titanium to Carbon/BMI



Review driven by 3 key factors:-

- The increasing use of materials which may present a hazard particularly when burned
- Increasing Health & Safety legislation
- Increasing risk of aggressive litigation

Composites fall into 3 main groups:-

- CARBON FIBRE: Fibres survive the fire, they are sharp, rigid and respirable.
- ARAMID FIBRE: Fibres survive the fire, they are non rigid but still respirable.
- GLASS FIBRE: Fibres melt in the fire.

Who are at risk?

- Firefighters
- Police
- Medics
- Investigators
- Recovery engineers
- Local Authority
- Insurance Assessors
- Visitors

Hazards are in 4 main groups:-

- Physical
- Chemical
- Biological
- Psychological

- +Aggressive Litigation

Four important hazards:-

- Batteries
- Composite Materials
- Biohazards
- Depleted Uranium

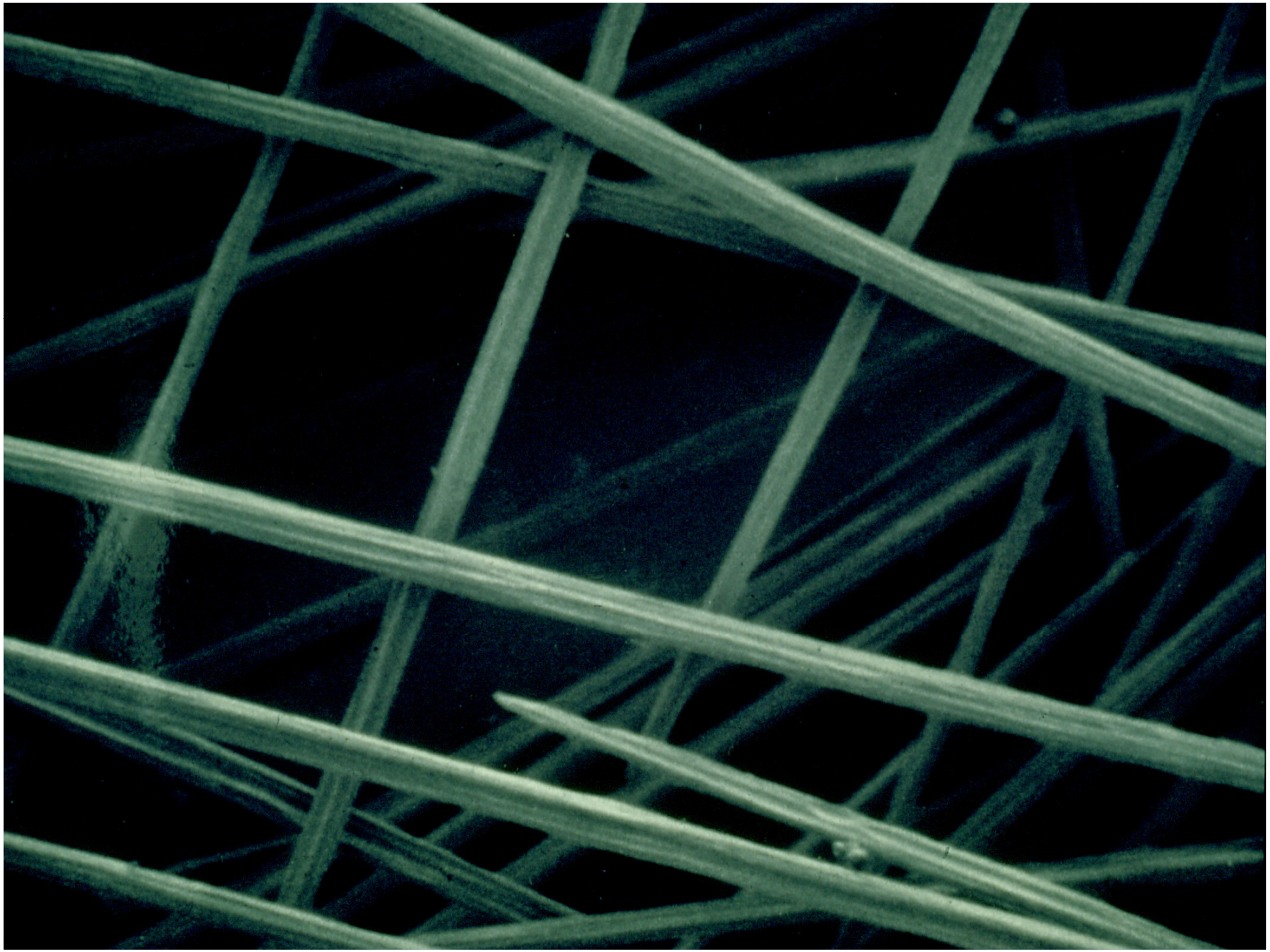
BATTERIES

- Aircraft batteries: Understand and treat with respect. Contents are highly corrosive.
- Lithium batteries: Widespread and rapidly increasing use in portable electronic devices, also could be carried in freight. Fire risk if damaged, toxic dust if burned.

COMPOSITE MATERIALS

- Without fire: Little or no release of fibres. Handle with care. Double wrap exposed fibre areas with Heavy Duty Polythene. Dispose of as low level contaminated waste.
- Burned but no impact: Little or no release of fibres. Remove debris carefully, and treat as low level contaminated waste

- With simultaneous fire and impact: High risk from respirable fibres and injury to exposed skin.
- Protect mouth, lungs and skin.
- Contamination Control procedures normally required.
- Dust control procedures to be considered.
- When moving wreckage take care not to spread contamination.
- Local Authority often insist that all trace be removed.



Increase in use of Carbon Fibre:-

Harrier	30% CFRP	0.6 tonnes
Grob VLJ	70% CFRP	1.0 tonnes
Eurofighter	80% CFRP	8.0 tonnes
Airbus 380	22% CFRP	58.0 tonnes
Airbus 350	40% CFRP	65.0 tonnes
Boeing 787	58% CFRP	75.0 tonnes

BIOHAZARDS

- HIV / AIDS
- HEPATITIS
- Tetanus
- Typhoid
- Polio
- Meningitis
- Pandemic virus

- HIV / AIDS: Considered to be no real risk as virus is fragile and short lived.
- Hepatitis: Various types, all harmful some fatal. Very real risk as virus is strong and long lived.
- Defence is important and simple – make sure that crash site blood and body fluids do not come into contact with your blood or body fluids.
- Understand that your skin is an effective barrier but do not rely on it.
- Do not spread the contamination off site.

DEPLETED URANIUM

- No real problems if material is unburned. Effective radiation hazard is low.
- DU burns readily at crash fire temperatures.
- Dust and ash retain radioactivity which becomes hazardous if inhaled or ingested.
- DU is also toxic and may cause renal damage.

ANY QUESTIONS ?