



Filmmakers have two options for shooting media — traditional analog film rolls and digital memory cards. By use of a comparative life-cycle assessment (LCA) of 35mm film versus digital semiconductor technologies, we (the UCLA HBO Practicum Team) want to equip filmmakers with the environmental context necessary for making an informed choice. Thus we are comparing a 1 TB SD card and 5400 feet of 35mm film as both store up to one hour of footage.

Film

Digital

5400 FT FILM

VS

1 TB SD CARD

Film

MATERIALS IN EACH

Digital

Of the raw materials used to create film, we found these to be the most impactful on the environment:

Cellulose acetate  
Gelatin  
Sliver  
Various chemicals

In researching the raw materials used to produce SD cards, we focused on these materials influencing our impact indicators the most:

Copper  
Resin epoxy  
Quartz  
Various chemicals

Film

MANUFACTURING PROCESS

Digital

The following processes are what we consider to encompass the general manufacturing process for film. Similar to digital, the actual manufacturing stage was the most impact intensive.

• Raw material extraction  
• Emulsion and cellulose base manufacturing  
• Film manufacturing  
• Transportation  
• Processing/developing

The following processes are what we consider to encompass the general manufacturing process for digital. Purification and chip manufacturing are the most impact intensive.

• Raw material extraction  
• Purification  
• Chip manufacturing  
• SD card casing  
• Transportation

Film

ENVIRONMENTAL IMPACTS

Digital

3989.71 kWh/hr	180:1	Energy	22.15 kWh/hr
2761.10 gal/hr	224:1	Water	12.34 gal/hr
561.26 kg/hr	3.4:1	CO2	164.70 kg/hr
2.41 kg/hr	1.5:1	Haz Waste	1.62 kg/hr