

## Embossed Fuel Bladder

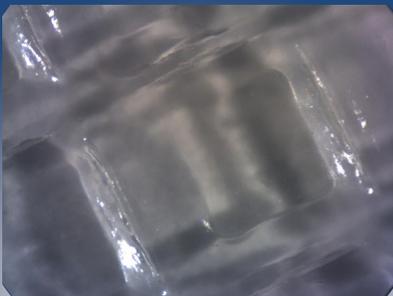
Our innovative approach to fuel bladder manufacturing has been a game changer to put it mildly. Fuel bladders used in the UAV industry to date must often include expensive, internal flow-assisting systems to ensure the entire fuel load is accessible to the engine as the fuel is being fed during a mission. If a bladder is constructed from non-embossed material, the smooth material design approach must contend with several engineering facts.

### *Technical issues with conventional smooth film construction fuel bladders:*

1. Required internal flow assisting pathways add weight and take up critical space while the UAV must perform it's mission with a calculated volume of fuel on board that can never be used.
2. The more complex the fuel bladder shape required, the more technically difficult and costly it is to design-in the required flow paths to ensure fuel will continue to present to the engine from all bladder areas.
3. When fuel bladder shapes are complex, flow assisting engineering becomes more technically difficult and costly.

### *Engineering gains with Battlefield embossed film construction:*

1. Inherent flow regardless of the bladder configuration, position or installation.
2. Our embossed fuel bladder film construction often saves as much as 50% in total weight over conventional fuel bladder systems.
3. We offer a significant cost savings due to the simplicity of our product.
4. We have the option to produce an oversized simplified shaped bladder as the embossed film ensures complete flow regardless of any folds. This fact can further enhance the price saving possibilities.
5. Our bladders can be fit into smaller areas, and can be manipulated more during installation as they do not require the internal flow system bulk or internal flow tube bonding.



Microscopic view of inherent flow channels molded into our embossed fuel bladder film. This design eliminates the need for any expensive flow-assisting tubing required in our competitor's bladders



Our fuel bladder continues to provide excellent flow whether folded over, pinched off, or simply being installed incorrectly. Don't try this with any smooth film constructed fuel bladder.