



### Overview

UCON™ TRIDENT™ AW Hydraulic Fluids are high-performance hydraulic fluids designed for demanding industrial applications requiring environmental sensitivity, water solubility, fire resistance, and excellent anti-wear properties over wide temperature ranges. These polyalkylene glycol (PAG) based fluids, which are available in three viscosity grades, are anhydrous (water-free) and are rated as “anti-wear.” UCON™ TRIDENT™ AW Hydraulic Fluids are ideal for use in applications such as dockside/marine, forestry, amusement, and industrial operations.

This document is provided to assist equipment owners and operators, as well as spill response professionals, in preparing for and responding to incidental spills. Spill response plans should take into account the extensive data on the subsequent pages when evaluating human and environmental impact.

Environmental parameters for UCON™ TRIDENT™ include:

- Non-sheening in salt or fresh water
- Water soluble
- Readily biodegradable
- Practically non-toxic to aquatic invertebrates
- Non-sludging

### Readily Biodegradable

Product	% Biodegradation*
UCON™ TRIDENT™ 32 AW	81
UCON™ TRIDENT™ 46 AW	72
UCON™ TRIDENT™ 68 AW	80

\*All products are considered Readily Biodegradable and were tested via method OECD 301F.

### Non-Sheening Passes Static Sheen Test (UCON™ TRIDENT™ 46 AW)

Test Method	Description	Results
Appendix 1 to Subpart A of 40 CFR 435	Static Sheen Test @ 23°C, 15 ml sample, distilled water, 15 minutes observation time	Observations: No sheen, No gloss, No increase in reflectivity, No color, No iridescence, No oil slick

### Environmental Classifications

Classified as CHEMICALS rather than OILS for industrial lubricants.

- Not subject to OPA 90 requirements
  - The USCG maintains a list of materials that are regulated as oils under OPA 90 (see <http://homeport.uscg.mil>). UCON™ TRIDENT™ fluids do not include any materials listed by USCG\*
  - UCON™ TRIDENT™ fluids do not cause a sheen or discoloration on the surface of the water or adjoining shorelines that would violate local water quality standards
- UCON TRIDENT™ fluids may be subject to local chemical management requirements

\*Note the U.S. Coast Guard and the EPA have differing definitions of oil.

### Classified as “Practically Non-Toxic”

#### U.S. Fish & Wildlife Service Classification

Based on inherent properties of the fluid and testing following the:

- U.S. EPA. Ecological Effects Test Guidelines, OPPTS 850.1010, Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids
- U.S. EPA. Ecological Effects Test Guidelines, OPPTS 850.1035, Mysid Acute Toxicity Test
- U.S. EPA. Ecological Effects Test Guidelines, OPPTS 850.1075, Fish Acute Toxicity, Freshwater and Marine
- U.S. EPA. Ecological Effects Test Guidelines, OPPTS 850.1000, Special Considerations for Conducting Aquatic Laboratory Studies
- OECD Series on Testing and Assessment, No. 23, Guidance Document on Aquatic Toxicity Testing of Difficult Substances and Mixtures

### Classified as “Environmentally Preferred”

The base chemistry of UCON™ TRIDENT™ meets the requirements of the United States Environmental Protection Agency’s “Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels” (VGP, February 2009). “Owner/operators should use an environmentally preferable lubricant, including vegetable oil, synthetic ester, or polyalkylene glycol as a base for these applications when feasible.”

©™Trademark of The Dow Chemical (“Dow”) or an affiliated company of Dow

# UCON™ TRIDENT™ AW Hydraulic Fluids

## Environmental Bulletin

### Regulatory Information

**Product as manufactured does not contain chemicals at levels that require reporting to emergency response authorities per the following statutes:**

- SARA Sections 302 and 304 Reportable Quantities for Extremely Hazardous Substances
- CERCLA Sections 102 and 103 (Reportable Quantities for Hazardous Substances)
- Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

**Product as manufactured does not contain chemicals listed in the following statutes:**

- US. Toxic Substances Control Act
  - All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30
- European Inventory of Existing Commercial Chemical Substances (EINECS)
  - The components of this product are on the EINECS inventory or are exempt from inventory requirements.

- Canadian Domestic Substances List (DSL)
  - All substances contained in this product are not considered as Persistent, Bioaccumulative, and/or Inherently Toxic to the environment
- California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)
  - This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.
- Oregon Department of Environmental Quality List of Priority Persistent Pollutants
- Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List

### Environmental Data

#### Biochemical Oxygen Demand

Product	BOD5	BOD10	BOD20	BOD28
UCON™ TRIDENT™ 32 AW	0.00	-4.44	65.68	69.14
UCON™ TRIDENT™ 46 AW	-0.50	-3.99	60.29	67.76
UCON™ TRIDENT™ 68 AW	0.00	-1.91	43.4	71.53

#### Toxicity Results for Aquatic Species

Product	Fresh Water Species		Sea Water Species	
	EC50 Results on Daphnid	LC50 Results on Fathead Minnow Pimephales Promelas 96H, WAF, mg/L*	EC50 Results on Mysid Shrimp Mysidopsis Bahia 96H, mg/L*	EC50 Results on Sheephead Minnow Cyprionidon Variegatus 96H, mg/L*
UCON™ TRIDENT™ 32 AW	750	‡	200	>1000
UCON™ TRIDENT™ 46 AW	430	297	250	>1000
UCON™ TRIDENT™ 68 AW	170	‡	330	>1000

\*All products are considered Practically Non-Toxic (U.S. Fish & Wildlife Service) and were performed under GLP. All tests were conducted using test solutions prepared via the water-accommodated fraction (WAF) method and values based on nominal loading rates.

‡No test data. UCON™ TRIDENT™ 32 AW and 46 AW are considered to have similar ratings based on comparable biodegradation and BOD data.



## Spill Data

### Product Spill Modeling (UCON™ TRIDENT™ 46 AW)

Distance (miles) and time (hours) to which the peak concentration of a UCON™ TRIDENT™ spill is practically non-toxic to humans and aquatic species.

		Model Input					Model Results			
		River			Spill		Human Toxicity		Aquatic Toxicity	
Scenario Description	River Location	Flow Rate (ft <sup>3</sup> /s)	Width (ft)	Depth (ft)	Volume (gal)	Mass (lb)	Distance to 600 mg/L	Travel Time	Distance to EC50 of 430 mg/L	Travel Time
Large river, large spill	Mississippi River at Tarbert Landing, MS	501,800	3700	27	1000	8591	0.034	0.01	0.05	0.01
		501,800	3700	27	7000	60134	0.24	0.07	0.32	0.09
Small river, small spill	Soldier Creek near Grove, KS	15.9	19.6	0.9	20	172	0.054	0.09	0.09	0.15
		15.9	19.6	0.9	100	859	1.19	1.94	1.67	2.7

### Scenario Spill Modeling

The following tables can be used to evaluate a potential spill scenario based on river flow, volume spilled, and maximum allowed concentration. Select the maximum allowed spill concentration based on the toxicity threshold of the most sensitive species of concern in proximity to the spill. For a variety of spill volumes per river, the flow scenario, distance (in miles) and travel time (in hours) to reach chemical peak concentration are provided.

#### 1. Mississippi River: flow 501,800 ft<sup>3</sup>/s

Spill Volume (gal)	Concentration					
	1,000 mg/L	750 mg/L	500 mg/L	250 mg/L	100 mg/L	
7500	0.15	0.21	0.3	0.59	1.5	distance (mi)
	0.04	0.06	0.09	0.17	0.43	travel time (hr)
1000	0.02	0.03	0.04	0.08	0.2	distance (mi)
	0.01	0.01	0.01	0.02	0.06	travel time (hr)
500	<0.01	<0.01	0.02	0.04	0.1	distance (mi)
	<0.01	<0.01	0.01	0.01	0.03	travel time (hr)
50	<0.02	<0.02	<0.02	<0.02	<0.02	distance (mi)
	<0.01	<0.01	<0.01	<0.01	<0.01	travel time (hr)
5	<0.02	<0.02	<0.02	<0.02	<0.02	distance (mi)
	<0.01	<0.01	<0.01	<0.01	<0.01	travel time (hr)

#### 2. Kanawha River (medium size river): flow 14,785 ft<sup>3</sup>/s

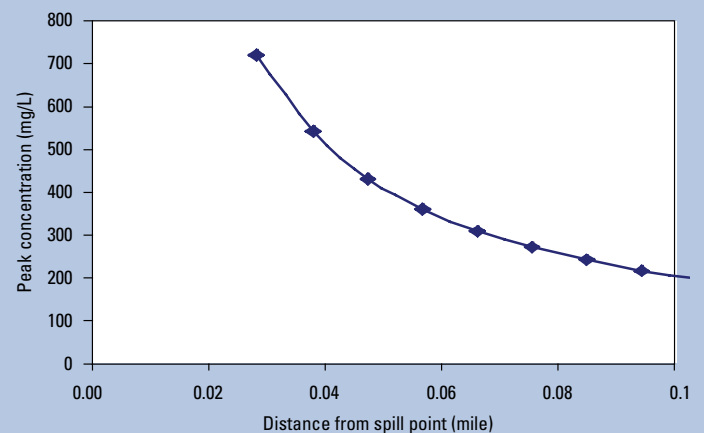
Spill Volume (gal)	Concentration					
	1,000 mg/L	750 mg/L	500 mg/L	250 mg/L	100 mg/L	
500	0.11	0.15	0.22	0.38	0.78	distance (mi)
	0.06	0.08	0.11	0.2	0.4	travel time (hr)

#### 3. Soldier Creek: flow 15.9 ft<sup>3</sup>/s

Spill Volume (gal)	Concentration					
	1,000 mg/L	750 mg/L	500 mg/L	250 mg/L	100 mg/L	
50	0.11	0.19	0.43	1.8	10	distance (mi)
	0.17	0.3	0.7	3	16	travel time (hr)
5	<0.05	<0.05	<0.05	<0.05	0.11	distance (mi)
	<0.09	<0.09	<0.09	<0.09	0.17	travel time (hr)

The following graph depicts a generic profile for the peak concentration of a spill vs. distance from a river spill site.

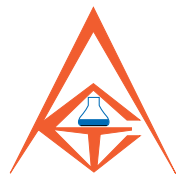
#### Peak Concentration vs. Distance from Spill



## Product Stewardship

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted prior to the use.

**In the United States and Canada, UCON™ TRIDENT™ is available from...**



AMERICAN CHEMICAL TECHNOLOGIES, INC.

**1-800-938-0101 • [www.americanchemtech.com](http://www.americanchemtech.com)**

### **For Additional Information:**

North America: 1-800-447-4369  
Latin America: (+55)11-5188-9222  
Europe: +800-3-694-6367 or (+32) 3-450-2240  
Asia-Pacific: +800-7776-7776 or (+60) 3-7958-3392  
[www.ucon.com](http://www.ucon.com)

NOTICE: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean The Dow Chemical Company and its consolidated subsidiaries unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

