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Summary of Aquatic Acute Toxicity Data for Spray Adjuvants Allowed for Use on Aquatic Sites in Washington (rev. 5/18/2009):

This information is a summary of the aquatic acute toxicity data that was submitted to WSDA by the registrants. Additional toxicity studies for some spray adjuvants have been conducted by researchers at the University of Washington and Washington State University. Spray adjuvants are listed in alphabetical order. No discrimination or endorsement is intended.

Product name	Registrant	Principal Functioning Agents	Acute toxicity - rainbow trout	Acute toxicity - daphnids
Agri-Dex	Helena Chemical Company	Petroleum oil, polyoxyethylene sorbitan fatty acid ester, sorbitan fatty acid ester	LC50 (96 hour) >1000 mg/l, Practically non-toxic	LC50 (48 hour) >1000 mg/l, Practically non-toxic
Bond	CPS Loveland Products	Synthetic latex, alcohol ethoxylate	LC50 (96 hour) 190 mg/l, Practically non-toxic	LC50 (48 hour) 614 mg/l, Practically non-toxic
Bronc Max	Wilbur-Ellis Company	Ammonium sulfate, dodecylbenzenesulfonic acid sodium salt, citric acid, dimethylpolysiloxane	LC50 (96 hour) ≥100 mg/l, Slightly toxic to Practically non-toxic	LC50 (48 hour) >100 mg/l, Practically non-toxic
Bronc Plus Dry-EDT	Wilbur-Ellis Company	Ammonium sulfate, urea, polyoxyethylene-polyoxypropylene copolymer, citric acid, polyacrylamide, dimethylpolysiloxane	LC50 (96 hour) 382.9 mg/l, Practically non-toxic	LC50 (48 hour) 223.6 mg/l, Practically non-toxic
Class Act NG	Winfield Solutions	Ammonium sulfate, saccharides, alkyl polyglycoside	LC50 (96 hour) 447 mg/l, Practically non-toxic	EC50 (48 hour) 377 mg/l, Practically non-toxic
Competitor	Wilbur-Ellis Company	Modified vegetable (seed) oil, polyethylene glycol fatty acid ester, polyoxyethylene sorbitan fatty acid ester	LC50 (96 hour) 95 mg/l, Slightly toxic	LC50 (48 hour) >100 mg/l, Practically non-toxic
Cut Rate	Wilbur-Ellis Company	Ammonium sulfate, citric acid	LC50 (96 hour) 782.2 mg/l, Practically non-toxic	LC50 (48 hour) 223.6 mg/l, Practically non-toxic

Product name	Registrant	Principal Functioning Agents	Acute toxicity - rainbow trout	Acute toxicity - daphnids
Cygnnet Plus	Brewer International	Limonene, modified vegetable (seed) oil, alcohol ethoxylate	EC50 (96 hour) 45 mg/l, Slightly toxic	EC50 (48 hour) 6.6 mg/l, Moderately toxic
Dyne-Amic	Helena Chemical Company	Modified vegetable (seed) oil, polysiloxane polyether copolymer, alkylphenol ethoxylate	LC50 (96 hour) 23.2 mg/l, Slightly toxic	LC50 (48 hour) 60 mg/l, Slightly toxic
Exciter	CPS Western Farm Service	Ammonium sulfate, ammonium nitrate, alkyl polyglycoside	LC50 (96 hour) >100 mg/l, Practically non-toxic	EC50 (48 hour) 7.7 mg/l, Moderately toxic
Fast Break	Winfield Solutions	Dimethylpolysiloxane	LC50 (96 hour) >100 mg/l, Practically non-toxic	LC50 (48 hour) >100 mg/l, Practically non-toxic
Fraction	Kalo	Ammonium sulfate, citric acid	LC50 (96 hour) 782.2 mg/l, Practically non-toxic	LC50 (48 hour) 223.6 mg/l, Practically non-toxic
Intensify	WestLink Ag	Ammonium sulfate, ammonium nitrate, alkyl polyglycoside	LC50 (96 hour) >100 mg/l, Practically non-toxic	EC50 (48 hour) 7.7 mg/l, Moderately toxic
InterLock	Winfield Solutions	Modified vegetable (seed) oil, polyoxyethylene sorbitan fatty acid ester, vegetable (seed) oil	LC50 (96 hour) >100 mg/l, Practically non-toxic	LC50 (48 hour) >100 mg/l, Practically non-toxic
Kinetic	Helena Chemical Company	Polysiloxane polyether copolymer, polyoxypropylene-polyoxyethylene copolymer	LC50 (96 hour) 13.9 mg/l, Slightly toxic	LC50 (48 hour) 60.7 mg/l, Slightly toxic
Level 7	Winfield Solutions	Ammonium sulfate, citric acid, saccharides	LC50 (96 hour) >100 mg/l, Practically non-toxic	EC50 (48 hour) >100 mg/l, Practically non-toxic
LI 700	CPS Loveland Products	Lecithin, propanoic (propionic) acid, alkylphenol ethoxylate	LC50 (96 hour) 130 mg/l, Practically non-toxic	LC50 (48 hour) 170 mg/l, Practically non-toxic

Product name	Registrant	Principal Functioning Agents	Acute toxicity - rainbow trout	Acute toxicity - daphnids
Liberate	CPS Loveland Products	Lecithin, alcohol ethoxylate, modified vegetable (seed) oil	LC50 (96 hour) 17.6 mg/l, Slightly toxic	EC50 (48 hour) 9.3 mg/l, Moderately toxic
Magnify	Monterey AgResources	Ammonium sulfate, ammonium nitrate, alkyl polyglycoside	LC50 (96 hour) >100 mg/l, Practically non-toxic	EC50 (48 hour) 7.7 mg/l, Moderately toxic
One-AP XL	Kalo	Ammonium sulfate, urea, polyoxyethylene-polyoxypropylene copolymer, citric acid, polyvinyl polymer (polyacrylamide), dimethylpolysiloxane	LC50 (96 hour) 382.9 mg/l, Practically non-toxic	LC50 (48 hour) 223.6 mg/l, Practically non-toxic
Pro AMS Plus Activator Penetrant	IAP	Ammonium sulfate, ammonium nitrate, alkyl polyglycoside	LC50 (96 hour) >100 mg/l, Practically non-toxic	EC50 (48 hour) 7.7 mg/l, Moderately toxic
Sinker	Helena Chemical Company	Polyvinyl polymer (Polyacrylamide), alkylphenol ethoxylate, sorbitan fatty acid ester	LC50 (96 hour) 750 mg/l, Practically non-toxic	LC50 (48 hour) >1000 mg/l, Practically non-toxic
Spray-Rite	J R Simplot	Ammonium sulfate, citric acid	LC50 (96 hour) 782.2 mg/l, Practically non-toxic	LC50 (48 hour) 223.6 mg/l, Practically non-toxic
Tactic	CPS Loveland Products	Synthetic latex, propylene glycol, alcohol ethoxylate, polysiloxane polyether copolymer	LC50 (96 hour) >100 mg/l, Practically non-toxic	EC50 (48 hour) 310 mg/l, Practically non-toxic
Tronic	Kalo	Vegetable (seed) oil ethoxylate, tall oil fatty acids	LC50 (96 hour) >200 mg/l, Practically non-toxic	EC50 (48 hour) 28.9 mg/l, Slightly toxic

WSDA Pesticide Registration <http://agr.wa.gov/PestFert/Pesticides/ProductRegistration.aspx>

Ecology Aquatic Pesticide Permits <http://www.ecy.wa.gov/programs/wq/pesticides/index.html>