

FACT SHEET

Pharmaceuticals and Personal Care Products (PPCPs)

PPCPs are a newly emerging pollution source, mostly of concern as contaminants in discharges from municipal wastewater treatment plants (WWTPs) and in stormwater runoff. In cooperation with state and federal agencies, municipalities are encouraging citizens to no longer dispose of pharmaceuticals (e.g., medications), cosmetics and other PPCPs by flushing down toilets. Many of these chemicals cannot be removed completely by traditional WWTP operations, and so the products are discharged to local waterbodies where they can cause harm to organisms in the environment. PPCPs can also enter waterbodies directly where they are carried by stormwater to local streams. The following information was taken from EPA web sources:

1 Potential Sources:

- a. **People and pets** – excreted medications, disposal to sewage treatment plant.
- b. **Hospital wastes, pharmacies** – disposal to sewage treatment plant.
- c. **Septic tanks and on-site waste treatment systems** – normal leach fields and system leaks.
- d. **Bio-solids applications, agriculture** – application to fields, manure from treated animals.
- e. **Washing, bathing, swimming** – direct release to open waters.
- f. **Drug manufacturing** – permitted process waste discharges, illegal drug labs and usage.
- g. **Landfills and cemeteries** – leachate from refuse, medical and hazardous wastes, cemeteries.
- h. **Aquaculture** – release to open waters of medicated feed and excreta.
- i. **Pest control agents** – homes, orchards, animal and insect chemical controls.



2 Ultimate Transport and Fate:

- a. **Most PPCPs** eventually transported from terrestrial to aquatic environments.
- b. **Photo-transformation** – reactions with UV light.
- c. **Physicochemical changes** – alteration, degradation, and ultimate mineralization.
- d. **Volatilization** – mainly certain anesthetics and fragrances.
- e. **Uptake by plants** – in some cases.
- f. **Respirable particulates** that contain sorbed drugs (e.g., medicated feed dusts).

