

## CHAPTER 9 PETROLEUM, OIL, AND LUBRICANTS

### C9.1 SCOPE

This Chapter contains criteria to control and abate pollution resulting from the storage, transport and distribution of petroleum products. Criteria for Underground Storage Tanks (USTs) containing POL products are addressed in Chapter 19, Underground Storage Tanks.

### C9.2 TERMS AND DEFINITIONS

Above-Ground Facility (*Oberirdische Anlagen oder Anlagenteile*). Facilities or facility parts that, although they may be in underground spaces, can easily be inspected or are easily accessible, including pipelines that have been laid in an underground protecting tube or pipe tunnel or crawlspace. Tanks that sit directly on the ground are considered above-ground storage tanks. This applies to tanks storing hazardous materials and wastes.

Above-Ground Storage Tank (*Oberirdische Tankanlage oder Anlagenteile davon*). A tank that is not underground. A tank in an underground space that can easily be inspected or is easily accessible, to include piping in an underground protecting tube, a tunnel, or a crawlspace that can easily be inspected or is easily accessible, is considered an above-ground storage tank. A tank that sits directly on the ground is also considered an above-ground storage tank.

Automatic Monitoring System. A filling safeguard which automatically shuts off the dispensing of POL products after a specified period of time, following a break in a normally recurring signal.

Bulk Storage Tanks. Refers to field-constructed tanks, usually having a capacity greater than 190,000 liters (50,000 gallons), and constructed above or below ground.

DIN. *Deutsches Institut für Normung, e.V.* German Institute for Standardization, registered association.

Dispensing Device. Parts of POL facilities used for the filling of fuel containers such as pumps or pump systems. Pumps may be manual or automatic.

Effective Area of the Dispensing Device. The radius of the furthest extension of the pump hose plus one meter from the working height of the pump nozzle.

Effective Area of the POL Filling Facility. The effective area of the dispensing device plus the areas up to the protective boundary (i.e., curbing, drainage system), as well as areas from which the storage containers are filled or emptied.

Filling Station. Stationary POL facilities or facilities used temporarily in a stationary manner where land vehicles are provided with liquid fuel (i.e., this may include HEMTT refuelers used for the dispensing of fuel).

Heating Oil, Extra Light. A liquid POL product typically used for modern heating oil powered facilities (e.g., No. 1 heating oil, No. 2 heating oil, kerosene).

Heating Oil Powered Facilities. Private facilities using heating oil for only heating purposes and comparable commercial facilities with regard to filling amount and frequency.

Installation. A base, camp, post, station, yard, center, or other activity under the jurisdiction of the Secretary of a Military Department that is located outside the United States and outside any territory, Commonwealth, or possession of the United States.

Overfill Prevention Devices. Devices that automatically discontinue the filling procedure or set off an alarm before the POL substances have reached the admissible filling level in the container to be filled.

Piping. Rigid or flexible piping used to convey POL substances. Piping also comprises fittings, flanges and sealant. There are two types of piping: piping within the premise of an installation (i.e. on-site piping) and piping running off the premise of an installation (i.e., off-site piping). On-site piping is always part of a facility (i.e., a filling station, a fuel unloading site or a stationary airfield tanking facility). Piping that extends beyond the site area and connects facilities that are closely related, both physically and operatively, is called connecting piping. Connecting piping may have a maximum length of 600 m. Off-site piping that is longer than 600 m is considered a main pipeline, for example a fuel supply pipeline. All connecting piping and main pipelines are considered to be independent POL facilities.

POL. Refined petroleum, oils and lubricants.

POL Facility. Independent, stationary or quasi stationary units (i.e., POL filling facilities, POL storage facilities, transshipment area, hard stand and oil-water separators), which are used for more than a short period of time. There is no minimum period of time a facility is to be used at any one location to be considered stationary. The temporary storage of POL products in areas not normally designated for this purpose (i.e., materials in transit), are not considered POL facilities. The temporary storage for transportation must not exceed 24 hours, unless non-labor days are between the temporary storage and off-site shipment.

The requirements identified for facilities storing, distributing, and handling water endangering substances refer to all POL facilities, unless stated otherwise. For more details about facilities storing, distributing, and handling water endangering substances refer to Chapter 5, Hazardous Materials.

POL Filling Facility (*Abfüllanlagen*). Facilities used for the filling of containers with POL substances; these include areas in which POL substances are transferred from one container into another. POL filling facilities are considered a part of a POL facility.

Private-Use Filling Stations. A filling station, which is used for the fueling of company-owned vehicles and equipment and is being served by the site operator or personnel employed by the site operator. In addition, filling stations operating with a total container volume and an annual consumption below the following indicated amounts are categorized as private-use filling stations:

### Limit Values of Private-Use Filling Stations

State	Total Container Volume [liters]	Annual Consumption [liters]
Hessen	Not defined	< 5,000
Bayern	< 10,000	< 40,000
Rheinland-Pfalz	< 10,000 (for Biodiesel < 100,000)	< 40,000 (for Biodiesel < 100,000)

There are no volume or consumption restrictions for private-use filling stations in the State of Baden-Württemberg.

Secondary Containment. Leak-proof constructions, rooms in buildings (fluid retention rooms), and pre-fabricated building components (collecting vats) designed to collect leaking POL products from tanks, containers or piping and leak-proof drainage areas designed to channel off leaking POL products from containers or pipelines into collecting devices (i.e., holding tanks, sumps, oil-water separators).

Self-Service Facility. A fuel facility that dispenses POL fuel without an attendant (i.e. not supervised).

Storage Tank. A fixed container designed to store POL.

Underground Facility. POL facilities or facility parts that are wholly or partly embedded in the ground without restriction with respect to volume. This does not include gutters and sewers that cannot easily be inspected. A POL tank sitting on the ground is not considered an underground storage tank.

Water Hazard Category (Gefährdungsstufe). Classification of facilities based on the volume and Water Hazard Class (WGK) of the substances used at the facilities. Reference Table C5.T2 of Chapter 5, Hazardous Materials.

Water Hazard Class (Wassergefährdungsklasse). Classification of substances based on their potential for endangering water resources as outlined below:

**Water Hazard Classes (Wassergefährdungsklasse, WGK)  
(See also Table C5.T1 of Chapter 5, Hazardous Materials)**

WGK 1	Substance with a low hazard rating for water
WGK 2	Substance with a medium hazard rating for water
WGK 3	Substance with a high hazard rating for water

## C9.3 REQUIREMENTS

### C9.3.1 SPILL PLANS

Each installation will have a contingency plan to manage spills and releases at all POL facilities, regardless of volume. Criteria for these plans are found in Chapter 18, Spill Prevention and

Response Planning. As part of the Spill Prevention and Response Plan for POL facilities, operating instructions and, depending on the Water Hazard Category (*Wassergefährdungsklasse*), an inventory of facilities (*Anlagenkataster*) may be required (see Section C18.3.1 of Chapter 18, Spill Prevention and Response Planning). These plans must be written specifically for each POL facility, certified by a competent technical DoD authority, and updated at least every 5 years, or when there are significant changes to operations.

### **C9.3.2 GENERAL TANK PROVISIONS**

All POL above-ground storage tanks must meet the following requirements:

- C9.3.2.1 All above-ground POL storage tanks must be provided with a secondary containment calculated according to the provisions for water endangering substances (See Chapter 5, Hazardous Materials).
- C9.3.2.2 The containment areas shall be constructed in accordance with appropriate host nation industry standards. The secondary containment requires a construction approval or a determination of suitability (*Bauartzulassung* or *Eignungsfeststellung*), and the sealing material may need a general construction approval, an approval mark or a determination of suitability (*allgemeine bauaufsichtliche Zulassung, Prüfzeichen* or *Eignungsfeststellung*) (See Chapter 5, Hazardous Materials).
- C9.3.2.3 The installation or operation of outlets in containment areas is prohibited.
- C9.3.2.4 Before stormwater is removed from containment areas, it shall be visually inspected for a petroleum sheen and/or chemically inspected for the presence of POL substances. If a petroleum sheen is detected and/or chemical analyses indicate the presence of POL substances it must be collected with absorbent material prior to drainage, or treated using an oil-water separator. Disposal of absorbent material and stormwater will be in accordance with Chapter 4, Wastewater and Chapter 6, Hazardous Waste.
- C9.3.2.5 Operating instructions should be prepared for the removal of surface water from containment areas. The operating instructions should include procedures for the disposal or discharge of the removed clean surface water and also for potentially impacted absorbent material and surface water.

#### **C.9.3.2.6 Bayern**

Containment areas may only be equipped with an outlet for the drainage of storm water if the outlet discharges to an appropriate wastewater treatment facility (i.e. municipal or on-site wastewater treatment plant).

#### **C9.3.2.7 Hessen**

Containment areas may only be equipped with an outlet for the drainage of water if a permit was issued by the appropriate water authority (*Wasserbehörde*). Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.

**C9.3.3 ADDITIONAL TANK WASTE PROVISIONS**

POL tank cleaning wastes frequently have hazardous characteristics and must be handled and disposed of according to the requirements of Chapter 6, Hazardous Waste.

C9.3.3.1 Tank cleaning wastes should be disposed of as wastes requiring special supervision according to Chapter 6, Hazardous Waste.

C9.3.3.2 Tank bottom waters, which are periodically drained from bulk storage tanks, will be collected and disposed of in accordance with Chapter 6, Hazardous Waste. Tank bottom waters should be disposed of as wastes requiring special supervision according to Chapter 6, Hazardous Waste.

**C9.3.4 GENERAL POL PIPELINE PROVISIONS FOR TESTING AND MAINTENANCE**

C9.3.4.1 All pipeline facilities carrying POL must be tested and maintained in accordance with the following requirements:

C9.3.4.1.1 On-site facilities that are not of ordinary or conventional construction type (*Anlagen einfacher oder herkömmlicher Art*) must be constructed based on German Industry standards (*Deutsche Industrienorm*). These facilities require a construction approval (*Bauartzulassung*) or a determination of suitability (*Eignungsfeststellung*). Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.

C9.3.4.1.2 POL piping at the following facilities are required to be inspected by an expert (*Sachverständigen*):

- Above-ground facilities of water hazard categories C and D
- Above-ground facilities in water protection zones of water hazard category B; and
- Facilities for which their certification (determination of suitability or construction approval) requires an inspection.

C9.3.4.1.3 For the building, operation, and major modification of off-site pipeline facilities or its operations, which pump substances hazardous to water and extend beyond the site premises, a license is required and inspection intervals may be set in the operating permit. Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.

C9.3.4.1.4 The assembly, installation, and operation of off-site connecting pipings (*Verbindungsleitungen*) and off-site main pipelines (*Fernleitungen*) transporting flammable POL liquids require a permit by the competent authorities (*Erlaubnisbehörde*). Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.

- C9.3.4.1.5 Connecting pipings (*Verbindungsleitungen*) and main pipelines (*Fernleitungen*) must be inspected every 2 years. Where electrical facilities are a part of such piping systems, including the facilities for high-voltage protection, the cathodic corrosion protection and the conductive discharge of electrostatic charges, the inspection is required every 3 years.
- C9.3.4.2 Each pipeline operator handling POL will prepare and follow a procedural manual for operations, maintenance and emergencies. See Chapter 18, Spill Prevention and Response Planning for additional information.
- C9.3.4.3 For each new pipeline facility and each facility in which pipe has been replaced or relocated, it must be ensured before being placed in-service that they do not present a hazard to the environment. On-site facilities that are not of ordinary or conventional construction type must be constructed based on German Industry standards (*Deutsche Industrienorm*). These facilities require a construction approval (*Bauartzulassung*) or a determination of suitability (*Eignungsfeststellung*). Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.
- 9.3.4.3.1 On-site facilities must be inspected in the following cases by an expert:
- after a major modification;
  - before starting up a facility after it has been shut down for more than one year;
  - if an examination is ordered because a hazard to water is feared; and
  - when a facility is shut down.
- 9.3.4.3.2 Major alterations of the construction or operation to off-site piping requires a permit. Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.

### **C9.3.5 GENERAL POL PIPELINE CONSTRUCTION**

- C9.3.5.1 On-site facilities that are not of ordinary or conventional construction type must be constructed based on German Industry standards (*Deutsche Industrienorm*). These facilities require a construction approval (*wasserrechtliche Bauartzulassung*) or a determination of suitability (*wasserrechtliche Eignungsfeststellung*) based on water law. A major alteration of the construction or operation to off-site piping requires a permit based on water law (*wasserrechtliche Genehmigung*). Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.
- C9.3.5.2 Above ground pipelines for the transportation of flammable substances must be labeled (see Chapter 5, Hazardous Materials). Labeling must be provided with adequate frequency and displayed clearly in direct proximity to potentially dangerous locations such as valves and couplings.

**C9.3.6 POL SPILLS AND LEAKS**

To control accidental POL releases, the installation must follow the guidance in the spill prevention and response plan required in Chapter 18, Spill Prevention and Response Planning.

**C9.3.7 POL FACILITIES HANDLING FLAMMABLE LIQUIDS**

- C9.3.7.1 Notification to the competent authority (*Anzeigepflicht*) is required prior to commencing operation of the following POL facilities (procedures for providing notification are addressed in Chapter 1, Overview).
- Facilities storing Hazard class A I, A II, or B flammable liquids in the locations and in the quantities outlined in Table C9.T1.
  - Filling facilities in enclosed rooms, in which 200 to 1,000 liters of Hazard Class A I, A II, or B flammable liquids can be dispensed hourly from each room.
  - Filling facilities for Hazard Class A III flammable liquids located in the same room as filling facilities for Hazard Class A I, A II, or B flammable liquids.
- C9.3.7.2 The assembly, installation, and operation of the following POL facilities require a permit from the competent Host Nation authorities. Any significant modification of such facilities also requires a permit. A modification is deemed significant if it can impair the safety of the facility. Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.
- Facilities for the storage of flammable liquids, except facilities exclusively storing Hazard Class A III flammable liquids, provided Hazard Class A I, A II, or B flammable liquids are stored in the locations and quantities identified in Table C9.T1 and if the identified storage quantities are exceeded.
  - Filling facilities:
    - In enclosed rooms where greater than 1,000 liters of Hazard Class A I, A II, or B flammable liquids can be dispensed hourly;
    - For Hazard Class A III flammable liquids stored in filling facilities for Hazard Class A I, A II, or B flammable liquids;
    - Located outdoors for Hazard Class A I, A II or B flammable liquids, and for Hazard Class A III flammable liquids if they are used in the vicinity of Hazard Class A I, A II, or B flammable liquids.
  - Filling stations, except where Hazard Class A III flammable liquids are exclusively stored or dispensed.
  - Stationary airfield tanking facilities (*Flugfeldbetankungsanlagen*), including pipelines and hydrant facilities.

**C9.3.8 INSPECTIONS**

C9.3.8.1 Facilities requiring a permit must be inspected by an expert (*Sachverständiger*), prior to initial operation and every 5 years thereafter. This requirement also applies to on-site piping associated with these facilities. The following additional facilities must be inspected every 5 years, unless shorter frequencies are dictated by commercial or construction law or by the competent authorities (see Chapter 5, Hazardous Materials):

- above-ground facilities of water hazard categories C and D;
- above-ground facilities in water protection zones of water hazard category B; and
- facilities for which their certification (determination of suitability or construction approval) requires an inspection.

**C9.3.8.2 Rheinland-Pfalz**

Heating oil storage tanks in Rheinland Pfalz with a volume less than 5,000 liters are exempt from the required inspection.

**C9.3.9 FACILITIES HANDLING HEATING OIL AND DIESEL FUEL**

C9.3.9.1 The storage of Hazard Class A I, A II or B flammable liquids with heating oil (extra light) in adjoining chambers of a multiple-chamber tank is prohibited.

C9.3.9.2 Containers of facilities storing heating oil (extra light), diesel fuel or gasoline are only permitted to be filled from tank trucks or portable tank containers equipped with a filling safeguard using an automatic shut-off system to prevent spills.

C9.3.9.3 If heating oil (extra light) is stored in shop fabricated, glass fiber reinforced synthetic containers (GfK) up to a certain volume, and with the storage facility equipped as established in Table C9.T3, secondary containment beyond the volume arising from operations is not required. For the filling sites of heating oil powered facilities (*Heizölverbraucheranlagen*) no minimum secondary containment beyond the volume arising from operations is required, if they fulfill the conditions in Table C9.T3.

**C9.3.9.4 Bayern**

C9.3.9.4.1 The competent authorities must be notified of facilities storing water endangering substances (see Chapter 5, Hazardous Materials).

C9.3.9.4.2 The space between the container wall and the secondary containment wall must be at least 40 cm apart for facilities storing heating oil (extra light), unless reasons for the upkeep and corrective maintenance require more space. Smaller spaces shall be only admissible if the collecting facility is monitored in the non-observable area by a leak detection system, or if a sufficient descending ground gradient is present towards the observable side so that any escaping substances can be visually detected immediately.

C9.3.9.4.3 The distance between the walls of the secondary containment and a plastic container with a capacity of up to 10,000 liters for heating oil (extra light) or diesel fuel, which is installed in an enclosed space, must be at least 40 cm on the accessible (approach) and at least one adjoining side (2-3 sides total) and 5 cm on the inaccessible side (side opposite the approach side) and an adjoining side. If there are more than one plastic containers with a total capacity of 25,000 liters for an entire system of containers installed in enclosed spaces (e.g., accumulator tanks) the distances described above also apply. In addition, there must be at least 5 cm between each of the containers. No particular distance from the floor is required.

#### C9.3.9.5 **Hessen**

C9.3.9.5.1 The competent authorities must be notified of facilities storing water endangering substances (see Chapter 5, Hazardous Materials).

C9.3.9.5.2 The space between the container wall and the secondary containment wall must be at least 40 cm apart for facilities storing heating oil (extra light), unless reasons for the upkeep and corrective maintenance require more space. Smaller spaces shall be only admissible if the collecting facility is monitored in the non-observable area by a leak detection system, or if a sufficient descending ground gradient is present towards the observable side so that any escaping substances can be visually detected immediately.

#### C9.3.9.6 **Rheinland-Pfalz**

The competent authorities must be notified of facilities storing water endangering substances (see Chapter 5, Hazardous Materials). This requirement does not apply to the operation of above-ground storage tanks for gasoline, heating oil and diesel fuel with a volume no greater than 1,000 liters, as long as they are located outside water and mineral spring protection zones.

### **C9.3.10 REQUIREMENTS FOR FILLING STATIONS**

C9.3.10.1 A permit is required for operating filling stations of flammable liquids, except those solely storing or dispensing Hazard Class A III flammable liquids. Procedures for obtaining permits or other authorizations are addressed in Chapter 1, Overview.

C9.3.10.2 The quantities of flammable and combustible liquids stored at filling stations must be kept to a minimum, especially above ground storage and storage in tanks which are not completely embedded in the earth.

C9.3.10.3 Filling facilities handling Hazard Classes A I, A II, A III, or B flammable liquids must comply with the following requirements.

- Fuel shall only be dispensed using appropriate dispensing devices.
- Fuels shall only be distributed at filling stations into fuel tanks of vehicles or into appropriate containers.

- The installation of surface drainage without oil-water separators is prohibited within the horizontal working radius of the dispensing pump nozzle.
- The ground surface must have an appropriate impermeable hard stand in the area of the horizontal working radius of the pump nozzle. Leaking or spilled POL products should be easily recognizable and removed immediately.

C9.3.10.4 Additional requirements for filling facilities handling Hazard Class A I, A II, and B flammable liquids are as follows:

- Dispensing equipment and above-ground storage tanks shall not be installed below ground-level, especially not in basements.
- Dispensing equipment above ground-level shall only be installed in buildings with rooms that are not frequently used if all additionally required construction and operational safety measures for the particular facility have been installed.
- Outlet valves and openings to lower-level rooms, basements, pits, shafts and ducts (i.e., for cables or piping systems) shall not be installed within the horizontal working radius of the pump nozzle. This does not apply to:
  - Outlet valves and openings that are more than 0.8 m above-ground-level
  - Dome shafts and remote filling ducts of underground storage tanks
  - Shafts for feeding systems below ground-level
  - Sand-filled base, inspection and cable shafts and ducts of filling facilities
- Small-scale pumps shall only be used as mobile dispensing units if the volume of their containers does not exceed 100 liters.
- Fuel shall only be dispensed from automatic pumps at unsupervised self-service filling stations.
- Automatic pumps and dispensing units for self-service filling stations shall be equipped with a pump nozzle that automatically shuts off.
- Automatic pumps shall be installed so that the pumping device automatically shuts off automatically after dispensing a restricted quantity of fuel.
- Vehicle motors and separate stand-by heating systems with a combustion chamber must be turned off prior to fueling operations. This restriction shall be indicated by the display of a clearly visible and legible sign.

C9.3.10.5 Filling stations must be upgraded in compliance with the requirements of C9.3.10.2 to C9.3.10.4, especially any modifications requiring official approval.

C9.3.10.6 **Bayern, Hessen, and Rheinland Pfalz**

The operator is required to notify the competent authorities of facilities storing water endangering substances.

C9.3.10.7 **Bayern**C9.3.10.7.1 Requirements for Ground Reinforcement and Sealing Measures (*Bayern*):

- C9.3.10.7.1.1 Calculation, construction, and manufacturing of the filling facilities and their associated components must comply at least with the recognized rules of technology (*anerkannte Regeln der Technik*).
- C9.3.10.7.1.2 The ground surface of filling sites shall be reinforced with a permanent, impermeable, and weather and fluid resistant hard stand capable of withstanding the foreseeable mechanical and dynamic impacts caused by vehicles.
- C9.3.10.7.1.3 Dome shafts, pumping devices, drainage channels and other facilities must be anchored to the hard stand so that fixtures and joints are impermeable to liquids. This also applies to fold-up components.
- C9.3.10.7.1.4 Joint filling material and gaskets must be permanently elastic.
- C9.3.10.7.1.5 Shallow subsurface layers in the area of filling facilities must be constructed according to the rules and guidelines for construction works (*zusätzliche technische Vorschriften - ZTVs*) issued by the German Federal Ministry for Transport.
- C9.3.10.7.1.6 A filling station, including pump shafts, dome shafts and remote filling chambers and ducts, must be constructed so that fuel cannot penetrate into the subsurface.

C9.3.10.7.2 Requirements for Filling of Storage Containers (*Bayern*):

Storage containers may only be filled if an automatic safety device is installed. Automatic safety devices are defined as:

- Filling tube safety devices (*Abfüll-Schlauch-Sicherungen ASS*)
- Devices with a safety button, which must be held down for the entire filling process, and an emergency-off function (*Aufmerksamkeitstaste und Not-Aus-Betätigung - ANA*).

C9.3.10.7.3 Requirements for the Discharge of Stormwater (*Bayern*):

A light liquid oil-water separator according to DIN 1999, parts 1-3, with an automatic closing mechanism must be installed and operated for the discharge of stormwater and other water from filling areas. This requirement does not apply if stormwater and other water is prevented from entering the filling area and is collected and disposed of separately, and if the filling site has no discharge piping. See Chapter 4, Wastewater for complete wastewater requirements.

**C9.3.10.7.4** Requirements for Operation, Maintenance and Monitoring (*Bayern*)

Filling sites must be regularly inspected by management to ensure the facility is in proper working order. Results of the inspections must be recorded in a control log (*Kontrollbuch*). Required maintenance and service measures shall be conducted without delay and damages must be repaired immediately.

**C9.3.10.7.5** Requirements for Private-use Filling Stations (*Bayern*):

**C9.3.10.7.5.1** The subsurface of the filling area must comply with the requirements for road construction and be covered with a layer of asphalt concrete (10 cm asphalt subsurface layer and 4 cm asphalt coating layer) or B25 concrete that is water-tight according to DIN 1045. For the drainage of stormwater from uncovered filling areas, a liquid oil-water separator according to DIN 1999, parts 1-3, with an automatic closing mechanism must be installed and maintained. Private-use filling stations with an annual consumption of less than 4,000 liters and a container volume of no more than 2,000 liters requires that the top layer of the filling area surface be graded.

**C9.3.10.7.5.2** A sufficient quantity of absorbent materials must be available to control and clean up leaking fuel. Used absorbent materials and potentially contaminated soil must be appropriately disposed of as hazardous waste.

**C9.3.10.8** **Hessen****C9.3.10.8.1** Requirements for Ground Reinforcement and Sealing Measures (*Hessen*):

**C9.3.10.8.1.1** Prior to the construction of filling sites, the subsurface of the intended area must be inspected for its suitability and whether it is contaminated with water endangering substances. The filling sites shall only be installed after remedial activities have been completed, unless the ground is suitable without remediation and if the performance of the remediation does not impede the construction activities.

**C9.3.10.8.1.2** The ground surface of filling sites must be reinforced with a permanent, impermeable, and weather and fluid resistant hard stand capable of withstanding the foreseeable mechanical and dynamic impacts caused by vehicles.

**C9.3.10.8.1.3** Dome shafts, pumping devices, drainage channels and other facilities must be anchored to the hard stand so that fixtures and joints are impermeable to liquids. This also applies to fold-up components.

**C9.3.10.8.1.4** Joint filling material and gaskets must be permanently elastic.

- C9.3.10.8.1.5 A filling station, including pump shafts, dome shafts and remote filling chambers and ducts, must be constructed so that fuel cannot penetrate into the subsurface.
- C9.3.10.8.2 Requirements for Pump Shafts (*Hessen*):
- C9.3.10.8.2.1 The intended location of tank trucks for the filling of storage containers must be clearly and permanently indicated. Only vehicles parked at an appropriately indicated location shall fill storage containers.
- C9.3.10.8.2.2 The fuel pumps must be installed on impermeable and wear-resistant collection and drainage surfaces so that leaking fuel is directed toward the filling location, where it can be easily detected and removed.
- C9.3.10.8.2.3 Automatic pumps and other dispensing devices that are unsupervised during their operation must be equipped with an automatic shut-off mechanism, which shuts-off the filling operation after a maximum of three minutes or a quantity of ninety liters.
- C9.3.10.8.2.4 Safety pipes in the area of the pumps and shafts must be secured so that if damaged, fuel cannot escape and penetrate the ground or migrate into the groundwater, wastewater facilities or above-ground water systems. This requirement is fulfilled if the safety pipes are sealed so that they are liquid-tight and wear-resistant.
- C9.3.10.8.3 Requirements for Secondary Containment (*Hessen*):
- C9.3.10.8.3.1 The secondary containment must be equal to the amount of fuel dispensed from a pump in three minutes at maximum pumping capacity (standard nozzle 50 l/min; high-performance nozzle 150 l/min).
- C9.3.10.8.3.2 The filling area of storage containers must have secondary containment sufficient for the amount of fuel released by a faulty gasket or a torn pump tube at a maximum pumping capacity until automatic safety features are enabled.
- C9.3.10.8.4 Requirements for Operation, Maintenance, and Monitoring (*Hessen*):
- C9.3.10.8.4.1 Filling sites must be regularly inspected by management to ensure they are in proper working order. Results of the inspection must be recorded in the control log (*Kontrollbuch*). Required maintenance and service measures shall be conducted without delay and damages must be repaired immediately.
- C9.3.10.8.4.2 Filling areas must be inspected at least once a month for contamination and damage.

- C9.3.10.8.4.3 Shafts from which fuel can escape must be inspected at least every six months for contamination and pockets of water. These areas must be cleaned where required. Dome shafts must be inspected at least once a month, except those connected to remote filling ducts and having no operative openings.
- C9.3.10.8.4.4 Oil-water separators and their piping components must be inspected at least every six months to determine whether they should be emptied, the automatic closing mechanism is still functioning and supply pipes are not damaged. Oil-water separators must be emptied when required.
- C9.3.10.8.4.5 Pump shafts must be spot-checked at least once a year for damage to the collecting or spillage components and to determine whether fuel has penetrated into the ground as a result.
- C9.3.10.8.4.6 All essential measures for proprietor inspections, maintenance and servicing must be stipulated in the operating instructions (*Betriebsanweisung*). When these measures are carried out, this must be recorded in the operating log (*Betriebstagebuch*). Operating instructions must be prepared for all facilities handling hazardous substances (see Chapter 5, Hazardous Materials).
- C9.3.10.8.4.7 A pressure inspection of supply pipes leading to an oil-water separator is required during the technical inspection. This can be waived if it is possible to reliably inspect the sealing quality in another way.
- C9.3.10.8.5 Requirements for Private-Use Filling Stations (*Hessen*):
- Private-use filling stations are exempt from the aforementioned State requirements for filling stations.

### C9.3.10.9 Rheinland-Pfalz

- C9.3.10.9.1 Requirements for Ground Reinforcement and Sealing Measures (*Rheinland-Pfalz*):
- C9.3.10.9.1.1 Calculation, construction and manufacturing of the filling facilities and their associated components must at least comply with the generally recognized German technical construction regulations.
- C9.3.10.9.1.2 The ground surface of the filling sites must be reinforced with a permanent, impermeable, and weather and fluid resistant hard stand capable of withstanding the foreseeable mechanical and dynamic impacts caused by vehicles.
- C9.3.10.9.1.3 Dome shafts, pumping devices, drainage channels and other facilities must be anchored to the hard stand so that fixtures and joints are impermeable to liquids. This also applies to fold-up components.

- C9.3.10.9.1.4 Joint filling material and gaskets must be permanently elastic.
- C9.3.10.9.1.5 Shallow subsurface layers of filling facilities must be constructed according to the rules and guidelines for construction works (*zusätzliche technische Vorschriften - ZTVs*) issued by the German Federal Ministry for Transport.
- C9.3.10.9.1.6 A filling station, including pump shafts, dome shafts and remote filling chambers and ducts, must be constructed so fuel cannot penetrate into the subsurface.
- C9.3.10.9.2 Requirements for Filling of Storage Containers (*Rheinland-Pfalz*):
- Storage containers may only be filled if an automatic safety device is installed. Automatic safety devices are defined as:
- Filling tube safety devices (*Abfüll-Schlauch-Sicherungen ASS*)
  - Devices with a safety button, which must be held down for the entire filling process, and an emergency-off function (*Aufmerksamkeitstaste und Not-Aus-Betätigung - ANA*).
- C9.3.10.9.3 Requirements for Secondary Containment (*Rheinland-Pfalz*):
- The mathematical calculations of the secondary containment should not consider the impact of stormwater. Installed oil-water separators can be included in the secondary containment calculations. The oil-water separators and their associated piping must be water-tight and resistant to mineral oil hydrocarbons. The above piping systems must be constructed so that it may be inspected for its impermeability (e.g. according to DIN 4033). The retention capacity must be equal to the amount of fuel dispensed from a pump in three minutes at maximum pumping capacity (standard nozzle 50 l/min; high-performance nozzle 150 l/min).
- C9.3.10.9.4 Requirements for the Discharge of Stormwater (*Rheinland-Pfalz*):
- A light liquid oil-water separator according to DIN 1999, parts 1-3, with an automatic closing mechanism must be installed and operated for the discharge of stormwater and other water from filling areas. This requirement does not apply if stormwater and other water is prevented from entering the filling area and is collected and disposed of separately, and if the filling site has no discharge pipes. See Chapter 4, Wastewater for complete wastewater requirements.
- C9.3.10.9.5 Requirements for Operation, Maintenance and Monitoring (*Rheinland-Pfalz*):
- Filling sites must be regularly inspected to ensure they are in proper working order. Results of the inspection must be recorded in the control log

(*Kontrollbuch*). Required maintenance and service measures shall be conducted without delay and damages must be repaired immediately.

C9.3.10.9.6 Requirements for Private-use Filling Stations (*Rheinland-Pflaz*):

- C9.3.10.9.6.1 A sufficient quantity of absorbent materials must be available to control and clean up leaking fuel. Used absorbent materials and potentially contaminated soil must be appropriately disposed of as hazardous waste. A permitted fire extinguisher (Brandklasse B, 6 kg) must be available.
- C9.3.10.9.6.2 Fuel containers used for filling vehicles must be located in appropriate filling areas. Fuel containers must be adequately protected against damage from vehicles or other external sources.
- C9.3.10.9.6.3 Specific requirements are not provided for the composition of ground surfaces at fuel supply areas, if the facility is filled and emptied using tank trucks and mobile tanks. In addition, the facility must be equipped with automatic filling safeguards and digital limit selectors permitted for filling heating oil fueled facilities. This also applies to above-ground storage tanks, up to a volume of 1 m<sup>3</sup>, equipped with a nozzle and an automatic shut-off system.
- C9.3.10.9.6.4 A siphon must be used for dispensing POL from storage containers. Filling in an area with a natural slope is prohibited. Storage containers with a volume greater than 1 m<sup>3</sup> must have filling facilities equipped with a nozzle and an automatic shut-off system, or a nozzle and a dead man's handle (*Totmannschaltung*). For storage containers with a volume no greater than 1 m<sup>3</sup> electric or hand operation is permitted.
- C9.3.10.9.6.5 The ground surface at the filling site (effective area of the filling facility, length of the hose plus 1 m) must have a solid and impermeable hard stand. The ground surface must be constructed so leaking substances can be identified, stopped and disposed of as hazardous waste.
- C9.3.10.9.6.6 The operator must regularly conduct a visual inspection of the filling area to assess its condition. Damages must be repaired immediately.

**C9.3.11 PROHIBITED POL SUBSTANCES OR RELATED ADDITIVES**

- C9.3.11.1 Wood preserving agents containing raw tars or tar oils, especially those substances listed in Table C9.T4 are prohibited from use.
- C9.2.11.2 Wood products that are painted with the agents listed in Table C9.T4 are prohibited from use.
- C9.3.11.3 Cooling lubricants containing nitrosamines (*nitrosierende Agenzien*) as additives are prohibited from use.

**Table C9.T1 Storage Areas Requiring a Notification (*Anzeigepflicht*) or a Permit (*Genehmigungspflicht*)**

Storage Location	Type of Container	A I	A I	A II or B	A II or B
		Requires Notification	Requires Permit	Requires Notification	Requires Permit
		(Storage volume in liters)			
Above and/or below ground	Fragile container	60-200	200	200-1,000	1,000
	Other containers	450-1,000	1,000	3,000-5,000	5,000
Above-ground storage containers	Fragile container		-	25-100	100
	Other containers	450-1,000	1,000	3,000-5,000	5,000
Underground storage tanks with a earth cover of less than 0.8 m		0-1,000	1,000	0-5,000	5,000
Underground tanks with a minimum earth cover of 0.8 m		0-10,000	10,000	0-30,000	30,000

**Table C9.T2 Conditions Required for Exemption of Minimum Secondary Containment Requirements for Above-Ground Facilities Storing Heating Oil (EL) and Diesel Fuel**

State Legal Source	Construction Date	Volume of Above-Ground Facility	Composition of Floor
<i>Hessen</i>	Not defined	Up to a total volume of 2 m <sup>3</sup> and as part of a facility with a total storage capacity of up to 10 m <sup>3</sup> as single or non-connected (with sealable valves) containers	Liquid-tight against heating oil, no outlet within a 5 m radius
<i>Rheinland-Pfalz</i> Section 2.1. of Appendix 2 of VawS	Not defined	Up to a total volume of 2 m <sup>3</sup> and as part of a facility with a total storage capacity of up to 10 m <sup>3</sup> as single or non-connected (with sealable valves) containers	Liquid-tight against heating oil, no outlet within a 5 m radius
<i>Baden-Württemberg</i> Section 3.1. of Appendix 1 of VawS	Before 31 December 1999	Up to a total volume of 2 m <sup>3</sup> and as part of a facility with a total storage capacity of up to 10 m <sup>3</sup> as single or non-connected (with sealable valves) containers	Liquid-tight against heating oil, leaks are prevented from entering drains and/or penetrating subsurface soil
<i>Bayern</i> Section 2.1. of Appendix 2 of VawS	Before 31 December 1999	Up to a total volume of 2 m <sup>3</sup>	Liquid-tight against heating oil, no outlet within a 5 m radius

**Table C9.T3 Conditions for Exemption of Minimum Secondary Containment Requirements for Filling Sites of Heating Oil Powered Facilities (Heizölverbraucheranlagen)**

State	Supply conditions	Safety conditions
<i>Hessen</i>	Facility is filled and emptied using certified tank trucks and portable tank containers;	Fuel dispenser is equipped with an automatic filling safeguard
<i>Rheinland-Pfalz</i>	Facility is filled and emptied using certified tank trucks and portable tank containers;	Fuel dispenser is equipped with an automatic filling safeguard and a digital limit selector ( <i>Grenzwertgeber</i> )
<i>Baden-Württemberg</i>	Facility is filled and emptied using permitted tank trucks and portable tank containers;	Fuel dispenser is equipped with an automatic filling safeguard and a digital limit selector ( <i>Grenzwertgeber</i> )
<i>Bayern</i>	Not defined	Fuel dispenser is equipped with automatic filling and overflow safeguards or a nozzle fitted with an automatic shut-off system

**Table C9.T4 Wood Preserving Agents Containing Raw Tars or Tar Oils**

<b>Substance name</b>	<b>Stoffbezeichnung</b>	<b>CAS #</b>
Creosote	<i>Kreosot</i>	8001-58-9
Creosote oil	<i>Kreosotöl</i>	61789-28-4
Carbolic oil	<i>Destillate (Kohlenteer), Naphtalinöl</i>	84650-04-4
Creosote oil	<i>Kreosotöl, Acenaphtenfraktion</i>	90640-84-9
Coal tar light oil	<i>Höhersiedende Destillate (Kohlenteer)</i>	65996-91-0
Anthracene oil	<i>Anthracenöl</i>	90640-80-5
Tar acids	<i>Teersäuren, Kohle, roh</i>	65996-85-2
Wood creosote	<i>Kreosot, Holz</i>	8021-39-4
Coal tar (low temperature)	<i>Niedrigtemperatur-Kohleteeralkalin</i>	122384-78-5