

# **CYS National Annex to CYS EN 1993-4-2:2007**

## **Eurocode 3: Design of steel structures**

### **Part 4-2: Tanks**

Prepared by  
Eurocodes Committee, Scientific and Technical  
Chamber of Cyprus under a Ministry of Interior's Programme



**NATIONAL ANNEX**  
**TO**  
**CYS EN 1993-4-2:2007 Eurocode 3: Design of steel**  
**structures**  
**Part 4-2: Tanks**

**This National Annex has been approved by the Board of Governors of the Cyprus Organisation for Standardisation on 11/06/2010.**

## INTRODUCTION

This National Annex has been prepared by the Eurocodes Committee of the Technical Chamber of Cyprus which was commissioned by the Ministry of Interior of the Republic of Cyprus

### NA 1 SCOPE

This National Annex is to be used together with CYS EN 1993-4-2:2007

This National Annex gives:

- (a) Nationally determined parameters for the following clauses of CYS EN 1993-4-2:2007 where National choice is allowed (see Section NA 2)
- 2.2 (1)
  - 2.2 (3)
  - 2.9.2.1 (1)P
  - 2.9.2.1 (2)P
  - 2.9.2.1 (3)P
  - 2.9.2.2 (3)P
  - 2.9.3 (2)
  - 3.3 (3)
  - 4.1.4 (3)
  - 4.3.1 (6)
  - 4.3.1 (8)
- (b) References to non-contradictory complementary information to assist the user to apply CYS EN 1993-4-2:2007. In this National Annex such information is provided for the following clauses in CYS EN 1993-4-2:2007 (see Section NA 3)
- None

## NA 2 NATIONALLY DETERMINED PARAMETERS

### NA 2.1 Clause 2.2 (1) Reliability differentiation

No consequence classes for tanks are defined.

### NA 2.2 Clause 2.2 (3) Reliability differentiation

No information on the consequence classes is provided. The following classification is adopted:

- **Consequence Class 3:** Tanks storing liquids or liquefied gases with toxic or explosive potential and large size tanks with flammable or water-polluting liquids in urban areas. Emergency loadings should be taken into account for these structures where necessary, see annex A.2.14 of EN 1993-4-2:2007.
- **Consequence Class 2:** Medium size tanks with flammable or water-polluting liquids in urban areas.
- **Consequence Class 1:** Agricultural tanks or tanks containing water

### NA 2.3 Clause 2.9.2.1 (1)P Partial factors for actions on tanks

Table 2.1 (CYS) provides the partial safety factors  $\gamma_F$ .

#### NA 2.4 Clause 2.9.2.1 (2)P Partial factors for actions on tanks

Table 2.1 (CYS) provides the partial safety factors  $\gamma_F$ .

#### NA 2.5 Clause 2.9.2.1 (3)P Partial factors for actions on tanks

Table 2.1 (CYS) provides the partial safety factors  $\gamma_F$ .

**Table 2.1 (CYS): Values for the partial factors for actions on tanks for persistent and transient design situations and for accidental design situation**

design situation	liquid type	recommended values for $\gamma_F$ in case of variable actions from liquids	recommended values for $\gamma_F$ in case of permanent actions
liquid induced loads during operation	toxic, explosive or dangerous liquids	1,40	1,35
	flammable liquids	1,30	1,35
	other liquids	1,20	1,35
liquid induced loads during test	all liquids	1,00	1,35
accidental actions	all liquids	1,00	

#### NA 2.6 Clause 2.9.2.2 (3)P Partial factors for resistances

Table 2.2 (CYS) provides the numerical values of partial factors  $\gamma_{Mi}$  for tanks.

**Table 2.2 (CYS): Numerical values for the partial factors for resistance**

$\gamma_{M0} = 1,00$	$\gamma_{M1} = 1,10$	$\gamma_{M2} = 1,25$
$\gamma_{M4} = 1,00$	$\gamma_{M5} = 1,25$	$\gamma_{M6} = 1,10$

#### NA 2.7 Clause 2.9.3 (2) Serviceability limit states

The value for the partial factor for serviceability  $\gamma_{Mser}$  is specified as  $\gamma_{Mser} = 1$ .

#### NA 2.8 Clause 3.3 (3) Steels for pressure purposes

No further information is provided.

#### NA 2.9 Clause 4.1.4 (3) Fatigue

The value for the number  $N_f$  of cycles is specified as  $N_f = 10000$ .

#### NA 2.10 Clause 4.3.1 (6) Modelling of the structural box

The value of  $n_s$  is specified as  $n_s = 40$ .

#### NA 2.11 Clause 4.3.1 (8) Modelling of the structural box

The value of  $n_{ew}$  is specified as  $n_{ew} = 15$ .

### NA 3 REFERENCES TO NON-CONTRADICTORY COMPLEMENTARY INFORMATION

None



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