

that were available in the primary reference;<sup>44</sup> when rates were not available for seven chemicals of concern, we used conservative surrogates derived from the same reference. The loading limits for nonwastewaters in Tables IV–1 and IV–2 were derived using this approach. We also completed modeling for these seven constituents using a default degradation rate of zero.

Table IV–4 presents the mass loading limits for nonwastewaters that would result from using zero degradation rates for the seven constituents. Under this approach, three additional constituents would be added to the § 261.32(c)(1) list (benzaldehyde, azobenzene, and p-toluidine) and five additional constituents would be added to the § 261.32(c)(2) list (2,4-dimethylaniline, 4-chloroaniline, 1,2-phenylenediamine,

aniline, and p-toluidine). We believe that using appropriate surrogates is preferable to assigning a default value of zero for the biodegradation rate. However, we request comment on whether the risk assessment results derived from the default rate of zero should be used as the basis for setting listing levels for some or all of these constituents.

TABLE IV–4.—ALTERNATE MASS LOADING LIMITS CALCULATED WITHOUT DEGRADATION

Constituent	Chemical abstracts no.	§ 261.32(c)(1) Mass levels (kg/ yr)	§ 261.32(c)(2) Mass levels (kg/ yr)
2,4-Dimethylaniline .....	95–68–1	3.7	160
4-Chloroaniline .....	106–47–8	89	3,400
1,2-Phenylenediamine .....	95–54–5	5.7	180
Benzaldehyde .....	100–52–7	1,500	( <sup>1</sup> )
Azobenzene .....	103–33–3	6,800	( <sup>1</sup> )
Aniline .....	62–53–3	110	4,300
p-Toluidine .....	106–49–0	11	400

<sup>1</sup> Not applicable: Calculated degradation rates exceed 10,000 kg/yr, no listing level proposed.

We specifically seek comment on the five constituents that would be added to the conditional exclusion in § 261.32(c)(2) if this alternate approach of using zero biodegradation rates were adopted. We recognize that some information we have in the record suggests that mass loadings in these wastes may not reach the Table IV–4 levels for some constituents.

For example, we have historical analytical data for dyes and/or pigments nonwastewaters for 2,4-dimethylaniline, 4-chloroaniline, p-toluidine, 1,2-phenylenediamine, and aniline (see the Listing Background Document). 2,4-Dimethylaniline was detected only in wastewater (two samples, maximum of 1.19 ppm). 4-Chloroaniline was found in five waste samples, but at fairly low concentrations (maximum of 13 ppm). p-Toluidine (also known as 4-methylaniline) was detected at high levels in one sample of nonwastewater (presumably a still bottom or spent solvent), and it was also possibly detected as a co-eluting component of 2/3/4-aminotoluene (maximum of 10.4 ppm). 1,2-Phenylenediamine (also known as 2-aminoaniline) was possibly detected at a maximum of 7.17 ppm as a co-eluting component of 2,4-aminoaniline and 2-methoxyaniline. However, the analytical data for 1,2-phenylenediamine is difficult to interpret because this chemical could not be separated from the other closely related isomers by the method used, and also because further evaluation of data

from other wastes indicated that the recovery of 1,2-phenylenediamine from some matrices is difficult (see section IV.A.5 for a discussion on waste analysis problems). Aniline was found in numerous waste samples, including wastewater sludges and other nonwastewaters; some samples had high aniline concentrations. Data from comments suggests that the higher concentrations may be associated with special wastes (e.g., still bottoms), but this cannot be confirmed from the available analytical data. In any case, aniline appears to be fairly prevalent in dye and/or pigment wastes. For these five constituents, the detected concentrations are generally below the theoretical waste concentrations we calculated using an estimated average waste quantity (e.g., the loading 160 kg/yr for 2,4-dimethylaniline contained in the average estimated waste quantity of 1,894 kg/yr would give a theoretical concentration of 84 ppm). Exceptions include one detection for p-toluidine and at least three samples for aniline.

We also considered TRI data from known dyes and/or pigments manufacturers reported for these constituents. The TRI data for 4-chloroaniline show that total reported releases of 212 kg were far below the § 261.32(c)(2) mass loading limits. 2,4-Dimethylaniline and p-toluidine are not on the TRI list of chemicals. The only TRI release for 1,2-phenylenediamine was the filing of a form A by one facility, indicating a release of less than

500 lbs., or 227 kg/yr. Five facilities reported releases of aniline (two others also filed form A); three of these reported total aniline releases that exceed the § 261.32(c)(2) mass loading limit.

In addition, some facilities appear to manufacture dyes and/or pigments products that are derived from these constituents. For example, company Web sites and the Colour Index link four facilities with products derived from 2,4-dimethylaniline. Also, while we were not able to find specific links between current dyes and/or pigments production facilities for products derived from 4-chloroaniline, we believe that this constituent's presence in multiple waste samples suggests it may be in use, or perhaps occurs as a by-product. The Colour Index and company websites also link several dyes and pigments production facilities with products derived from 1,2-phenylenediamine and p-toluidine. Aniline is a common raw material for dyes and pigments; this constituent is linked to at least eight companies. Thus, if we decide to adopt this alternate approach to assessing degradation rates for these constituents, we will evaluate information submitted by commenters on the potential presence of these constituents at the proposed levels in nonwastewaters and the current use of these constituents in dyes and/or pigments production. After considering all available information, we will determine whether we should set

<sup>44</sup> Howard, P.H., R.S. Boethling, W.F. Jarvis, W.M. Meylan, E.M. Michalenko, and H.T. Printup (ed.).

1991. *Handbook of Environmental Degradation Rates*. Lewis Publishers.