

TECHNICAL SUPPORT DOCUMENT

TECHNICAL INFORMATION PRESENTED IN REVIEW OF AN
APPLICATION FOR A PART 70 OPERATING PERMIT MINOR REVISION

SUBMITTED BY

TITANIUM METALS CORPORATION

Part 70 Operating Permit Number: 19

SIC Code 3339: Primary Smelting and Refining of Nonferrous Metals, Except Copper and
Aluminum



Clark County
Department of Air Quality
Permitting Section

July 2012

EXECUTIVE SUMMARY

Titanium Metals Corporation (TIMET) is a combined titanium sponge and ingot facility located in the BMI Complex near Henderson, Nevada. The legal description of the source location is as follows: portions of T22S, R62E, Section 12 in Las Vegas Valley, County of Clark, Nevada. TIMET is situated in hydrographic area 212 (Las Vegas Valley). Las Vegas Valley is designated as nonattainment area for PM₁₀ and nonattainment area for 8-hour ozone (regulated through NO_x and VOC) and is PSD area for CO and SO₂.

TIMET emits particulate matter (PM₁₀), carbon monoxide (CO), oxides of nitrogen (NO_x), oxides of sulfur (SO_x), volatile organic compounds (VOCs), and hazardous air pollutants (HAP). TIMET is a major source for CO and a minor source for PM₁₀, NO_x, SO_x, VOC and HAP. The sponge plant (Chlorination, Magnesium Recovery, and Vacuum Distillation Process (VDP)) has a nameplate capacity of 32 million pounds per year of titanium sponge production. The melt shop utilizes the Vacuum Arc Remelt (VAR) process for the production of titanium ingots from sponge, scrap, master alloy and elemental additives. TIMET is capable of producing approximately 140 million pounds of titanium tetrachloride (TiCl₄), 32 million pounds of titanium sponge, and 30 million pounds of titanium ingots per year. The potential emissions for the source are shown in Table 1.

Table 1: Maximum Source PTE (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP
PTE Totals	63.90	56.15	11.29	394.10	85.11	6.93	2.80
Major Source Thresholds	70	100	100	100	100	100	25/10¹

¹25 tons for combination of all HAPs (no single HAP exceeds 10 tons).

The Clark County Department of Air Quality (DAQ) has delegated authority to implement the requirements of the Part 70 operating permit program.

The renewed Part 70 Operating Permit (OP) was issued on December 23, 2011. This minor revision of the Part 70 OP is based on the revision application submitted on January 25, 2012 and supplemental information submitted on January 26, 2012.

This Technical Support Document (TSD) accompanies the proposed Part 70 Operating Permit for Titanium Metals Corporation.

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I. SOURCE INFORMATION

A. General

Permittee	Titanium Metals Corporation
Mailing Address	P.O. Box 2128, Henderson, NV 89009
Contact	Bruce Graff, Plant Manager
Phone Number	(702) 564-2544
Fax Number	(702) 564-2689
Source Location	181 North Water Street, Henderson, NV 89015
Hydrographic Area	Las Vegas Valley (212)
Township, Range, Section	T22S, R62E, Section 12
SIC Code	3339: Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum
NAICS Code	331419: Primary Smelting and Refining of Nonferrous Metals (except Copper and Aluminum)

B. Permitting History

The Titanium Metals Corporation (TIMET) is regulated by the Clark County Department of Air Quality (DAQ), and has a Title V permit. TIMET is a major source for CO. The initial Part 70 OP was issued on May 20, 2004 and the permit was renewed on December 23, 2011.

On January 25, 2012, TIMET submitted an application for the addition of an emergency generator (EU: M17), the replacement of eight cooling towers (EUs: G12 through G19) and for the addition of a Donaldson Torit 13,000 cfm cyclone connected to the already-constructed enclosure around EU: M04. These upgrades will be included in the minor revision of the Part 70 OP. The cooling towers will be replaced during the upcoming year. Since the project has no set completion date, both existing and new units will be listed in the Part 70 OP. Upon the completion of the replacement of the old cooling towers, the units will be removed from the permit upon TIMET's request. The proposed changes did not exceed any significance emission thresholds and a case by case control technology analysis was not required.

On January 26, 2012, TIMET requested series of minor changes to the Part 70 OP, based on comments to the Final Action Report (FAR). All the comments will be addressed during this minor revision of the operating permit.

II. EMISSIONS INFORMATION

A. Source-wide Potential to Emit

TIMET is a major source for CO and a minor source for PM₁₀, NO_x, SO_x, VOC, and HAP:

Table II-A-1: Source-wide PTE (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP
PTE Totals	63.90	56.15	11.29	394.10	85.11	6.93	2.80
Major Source Thresholds	70	70	100	100	100	100	25¹

¹25 tons for combination of all HAPs (no single HAP exceeds 10 tons).

Table II-A-2: Source PTE by Process (tons per year)

Process	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP	HCl	Cl ₂	COS	H ₂ SO ₄
Raw Materials Storage and Handling	1.74	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chlorination	10.81	8.27	10.53	393.93	85.02	0.21	0.05	0.39	0.13	0.31	3.75
Purification	6.12	5.52	0.42	0.09	0.01	0.40	0.01	1.67	0.00	0.00	0.00
Vacuum Distillation	26.22	23.48	0.16	0.03	0.02	0.04	0.01	0.80	0.35	0.00	0.00
Magnesium Recovery	11.75	10.56	0.01	0.01	0.01	0.01	0.01	0.00	1.45	0	0
Blending	2.10	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Melt/Reclaim	4.08	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous	1.08	1.15	0.17	0.04	0.05	5.90	2.49	0.00	0.00	0.00	0.00
Wastewater Reclamation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
Groundwater Remediation	0.00	0.00	0.00	0.00	0.00	0.37	0.23	0.00	0.00	0.00	0.00
Total	63.90	56.15	11.29	394.10	85.11	6.93	2.80	2.86	1.96	0.31	3.76

B. Emission Units and PTE

MAGNESIUM RECOVERY PROCESS

The following tables: Table II-B-4, Table II-B-5, and Table II-B-6 list only the emission units that are affected by this permitting action.

Table II-B-4: List of Emission Units (EU) – Magnesium Recovery Process

EU	Description	Rating	Make	Model #	Serial #	SCC
G10	Diesel Generator for Emergency Scrubber - Engine	87 hp	Caterpillar	3054	4ZK02183	20200104
	Diesel Generator for Emergency Scrubber - Genset	50 kW	Generac	94A04770-S	2016244	
G12a	Cooling Tower #1	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12b	Cooling Tower #2	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12c	Cooling Tower #3	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12d	Cooling Tower #4	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12e	Cooling Tower #5	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12f	Cooling Tower #6	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12g	Cooling Tower #7	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12h	Cooling Tower #8	220 gpm	Delta CT Co.	DT-150	64808	38500100
G12	Cooling Tower #1 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G13	Cooling Tower #2 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G14	Cooling Tower #3 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G15	Cooling Tower #4 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G16	Cooling Tower #5 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G17	Cooling Tower #6 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G18	Cooling Tower #7 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100
G19	Cooling Tower #8 (New)	220 gpm	Delta CT Co.	DT-150	TBD	38500100

The source plans to replace eight existing cooling towers (EUs: G12a-h) that have drift eliminators with a manufacturer's maximum drift rate of 0.1 percent. The new cooling towers (EUs: G12 through G19) have a manufacturer's maximum drift rate of 0.001 percent. The cooling towers will

be replaced during the upcoming year. Since the project has no set completion date, both existing and new units are listed in the Tables II-B-4, -5, -6. Upon the completion of the replacement, the old cooling towers (EUs: G12a-h) will be removed from the permit upon TIMET's request.

Table II-B-5: PTE (tons per year) – Magnesium Recovery Process

EU	Rating	Conditions	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP	Cl ₂	H ₂ SO ₄
G10	87 hp	500 hr/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
G12a	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12b	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12c	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12d	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12e	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12f	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12g	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12h	220 gpm	8,760 hr/yr	0.57	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G13	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G14	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G15	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G16	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G17	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G18	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G19	220 gpm	8,760 hr/yr	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			11.75	10.56	0.01	0.01	0.01	0.01	0.01	1.45	0.01

Table II-B-6: PTE (pounds per hour) – Magnesium Recovery Process

EU	Rating	Conditions	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP	Cl ₂	H ₂ SO ₄
G10	87 hp	1 hour	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.00	0.00
G12a	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12b	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12c	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12d	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12e	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12f	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12g	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12h	220 gpm	1 hour	0.13	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G12	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G13	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G14	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G15	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G16	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G17	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G18	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G19	220 gpm	1 hour	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			2.71	2.48	0.05	0.01	0.01	0.01	0.01	0.33	0.01

MISCELLANEOUS PROCESSES

The following tables: Table II-B-7, Table II-B-8, and Table II-B-9 list only the emission units that are affected by this permitting action. TIMET added emergency generator (EU: M17) and the Donaldson Torit 13,000 cfm cyclone was connected to the already-constructed enclosure around Abrasive Blast Area (EU: M04). Additionally, PTE for the Alpha Ditch emergency generator was revised (EU: W04).

Table II-B-7: List of Emission Units (EU) – Miscellaneous Processes

EU	Description	Rating	Make	Model #	Serial #	SCC
M04	Outdoor Abrasive Blast Area	180 tons abrasive/yr				30200201
M17	Emergency Generator - Engine	51 hp	John Deere	A2400T-Gen	TBD	20200104
	Emergency Generator - Genset	15 kW	Generac	SD015	TBD	
W04	Alpha Ditch Emergency Generator - Engine	35 hp	John Deere	4024TF818	OG6024	20200104
	Alpha Ditch Emergency Generator - Genset	25 kW	Generac	9781650200	2098264	

Table II-B-8: PTE (tons per year) – Miscellaneous Processes

EU	Rating	Control	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP
M04	180 tons abrasive/yr	45.0 %	0.69	0.79	0.00	0.00	0.00	0.00	0.00
M17	51 hp	0.0 %	0.01	0.01	0.09	0.03	0.03	0.03	0.01
W04	35 hp	0.0 %	0.01	0.01	0.08	0.01	0.02	0.01	0.01
Total			1.08	1.15	0.17	0.04	0.05	5.90	2.49

Table II-B-9: PTE (pounds per hour) – Miscellaneous Process

EU	Rating	Control	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP
M04	180 tons abrasive/yr	45.0 %	0.16	0.18	0.00	0.00	0.00	0.00	0.00
M17	51 hp	0.0 %	0.02	0.02	0.35	0.13	0.10	0.13	0.01
W04	35 hp	0.0 %	0.08	0.08	1.09	0.23	0.07	0.09	0.01
Total			0.43	0.44	1.44	0.36	0.17	1.56	0.58

III. ADMINISTRATIVE REQUIREMENTS

AQR Section 12.5 requires that DAQ identify the original authority for each term or condition in the Part 70 OP. Such reference of origin or citation is denoted by *[italic text in brackets]* after each Part 70 OP condition.

DAQ proposes to issue the revision of Part 70 OP conditions on the following basis:

Legal:

On December 5, 2001 in Federal Register Volume 66, Number 234 FR30097 the EPA fully approved the Title V Operating Permit Program submitted for the purpose of complying with the Title V requirements of the 1990 Clean Air Act Amendments and implementing Part 70 of Title 40 Code of Federal Regulations.

Factual:

TIMET has supplied all the necessary information for DAQ to draft Part 70 OP conditions encompassing all applicable requirements and corresponding compliance.

Conclusion:

DAQ has determined that TIMET will continue to determine compliance through the use of CEMS, PEMS, performance testing, quarterly reporting, and daily recordkeeping, coupled with annual certifications of compliance. DAQ proceeds with the decision that a Part 70 OP should be issued as drafted to TIMET for a period not to exceed five (5) years.